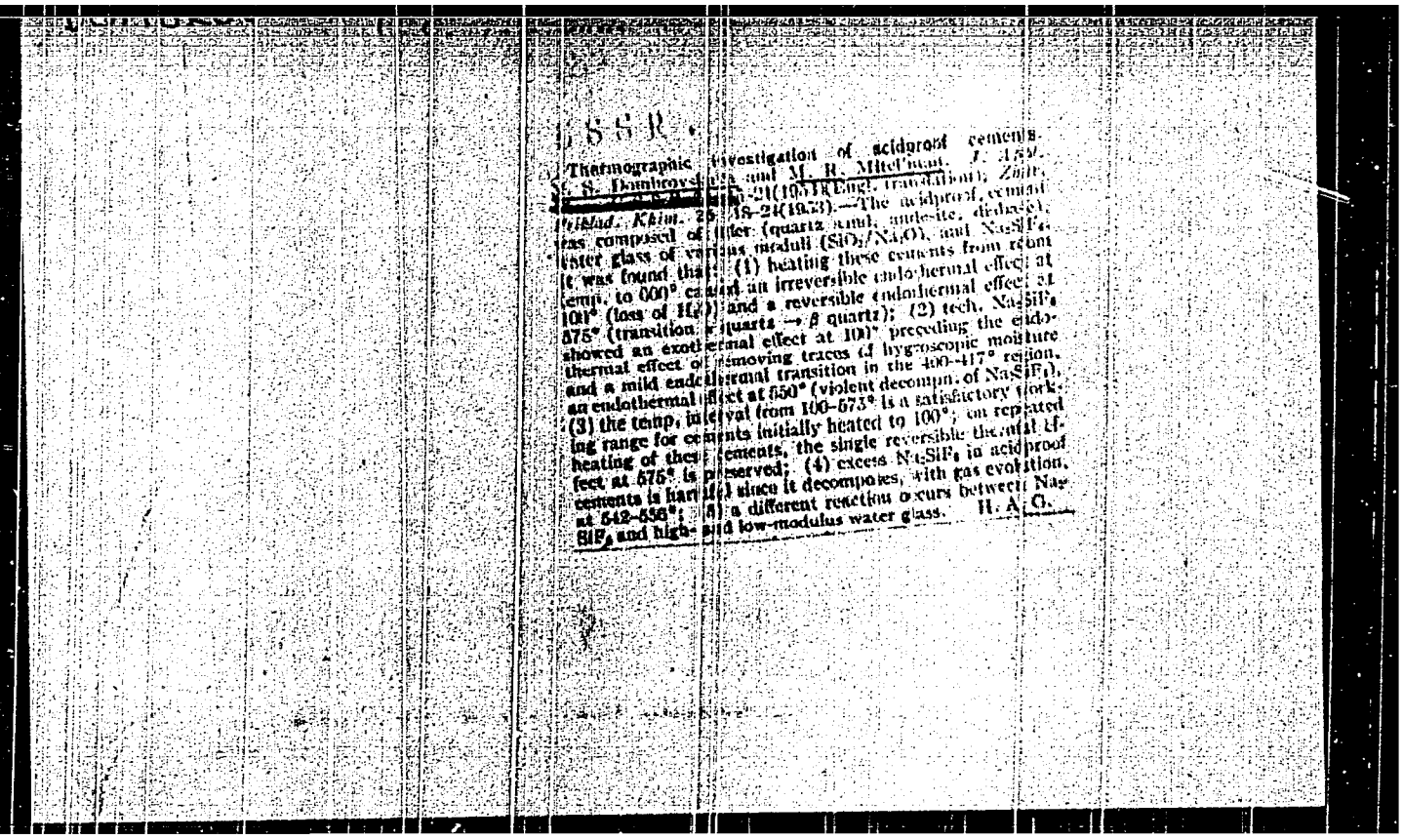


USSR

Thermographic investigation of acidproof cements. S. S. Dumbrovskaya and M. R. Mittel'man. *J. Appl. Chem. USSR* 26, 18-24(1953); *J. Appl. Khim.* 26, 21(1953)(Engl. translation).—The acidproof cement was composed of finely ground quartz and andesite, diabase, or water glass of various moduli (SiO_2/Na_2O), and Na_2SiF_6 was added. It was found that: (1) heating these cements from room temp. to 600° caused an irreversible endothermal effect at 101° (loss of H_2O) and a reversible endothermal effect at 575° (transition of quartz $\alpha \rightarrow \beta$ quartz); (2) tech. Na_2SiF_6 showed an exothermal effect at 101° preceding the endothermal effect of removing traces of hygroscopic moisture and a mild endothermal transition in the 400–417° region, an endothermal effect at 550° (violent decompn. of Na_2SiF_6), (3) the temp. interval from 100–575° is a satisfactory working range for cements initially heated to 100°; on repeated heating of these cements, the single reversible thermal effect at 575° is preserved; (4) excess Na_2SiF_6 in acidproof cements is harmful since it decomposes, with gas evolution, at 542–556°; (5) a different reaction occurs between Na_2SiF_6 and high- and low-modulus water glass. H. A. C.

DOMBROVSKAYA, N. S.

USSR/Chemistry - Acid-resistant Cements Sep 53

"The Interaction Between Silicate and Sodium Silicofluoride in Acid-Resistant Cements," N. S. Dombrovskaya, M. R. Mitel'man, All-Union Sci-Res Inst of Chem Machine Building

Zhur Prik Khim, Vol 26, No 9, pp 899-906

In industrial acid-resistant cements, interaction between sodium silicofluoride and disodium silicate takes place acc to the mechanism described.

271T27

DOMBROVSKAYA, N.S.

USSR

Apparatus for electrolysis with mercury cathode (new models PK-1 and PK-1 NIIK and MASh). N. S. Dombrovskaya and N. I. Rodionova. *Trudy Komissii Anal. Khim., Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 5(8), 112-6 (1954).—In the app. described the Pt conductor can be moved to change the distance between the Pt conductor and the surface of the Hg. More Hg could easily be added to the small cup which holds the Hg. Eurilla Mayerle

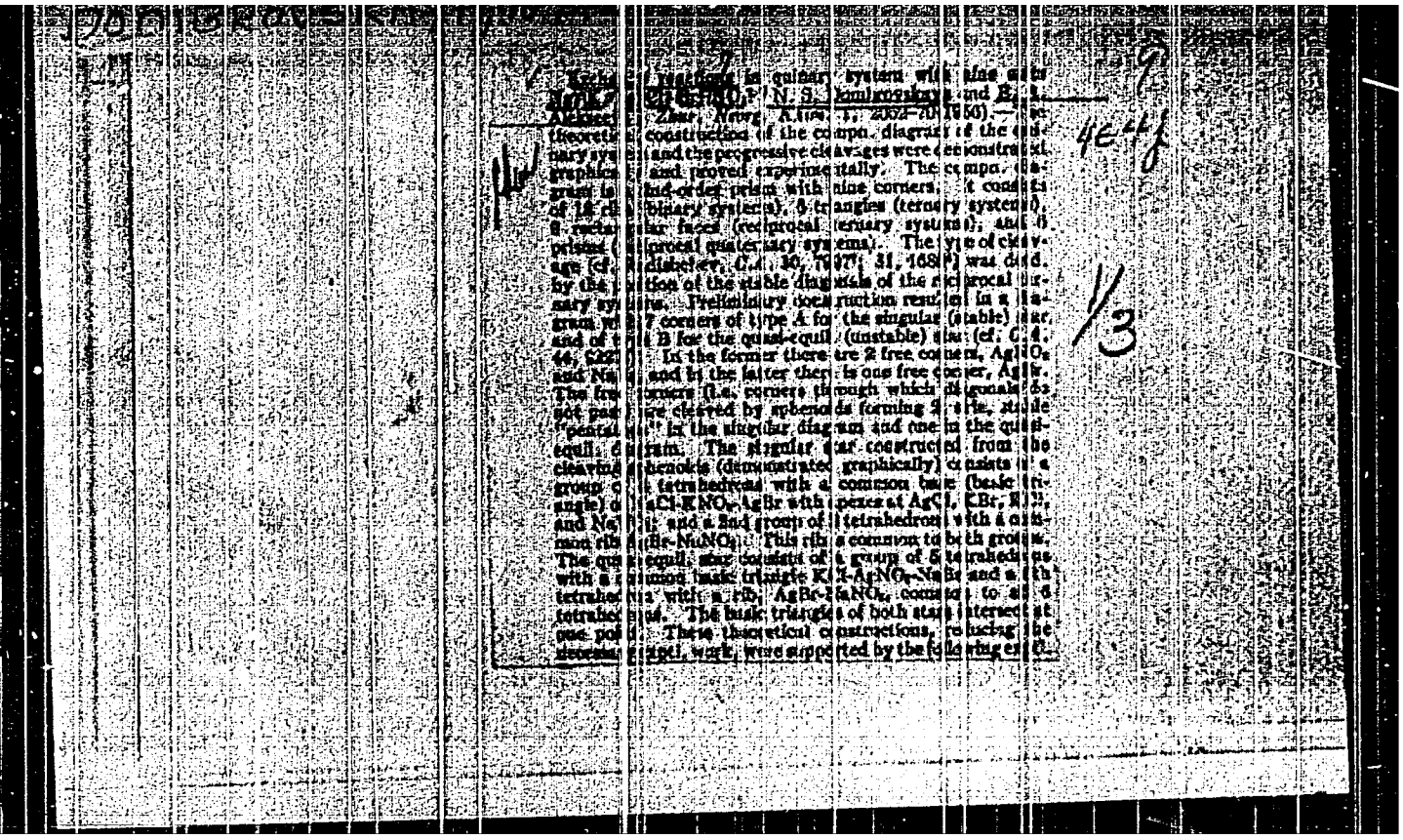
DOMBROVSKAYA N.S.

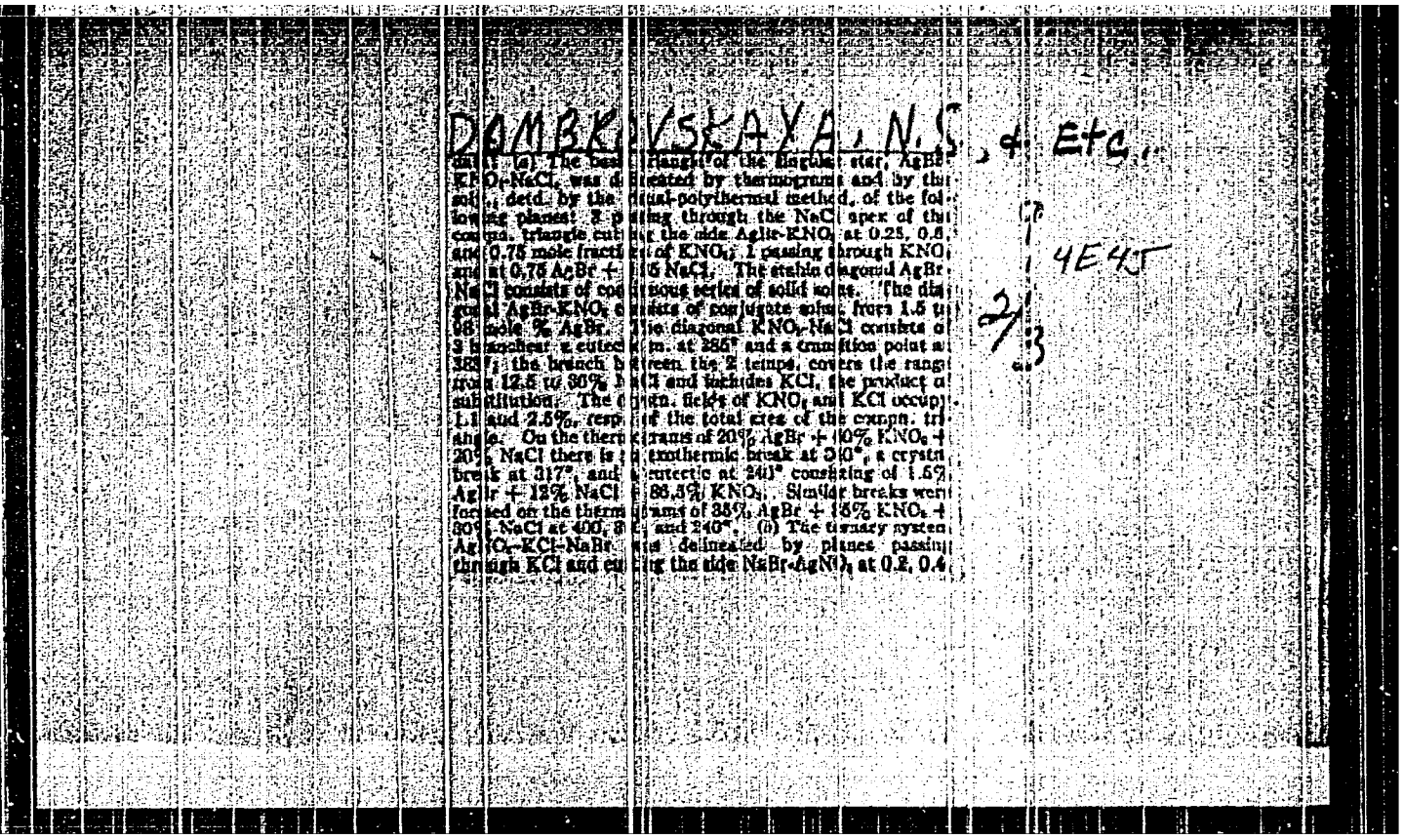
4

Solubility isotherm at 25° of the system lead oxide-Seignette's salt-water. N. S. Dombrovskaya and B. S. Bruk. *Izvest. Sektora Fiziko-Khim. Analiza Otdel. Obshch. i Neorg. Khim., Akad. Nauk S.S.R.* 26, 214-8(1955).—Detn. of solv. residues showed that the complex formed in water solns. consists of $5PbO.3KNaC_4H_4O_6$ (I). The soln. isotherm corresponding to I has the form of a broken line. As a consequence with isothermal evapn. of solns. the quant. relationship of the ppts. phases does not remain const. but varies continuously between wide limits. Additn. of small amts. of NaOH to a satd. soln. of I yielded crystals of $PbO.KNaC_4H_4O_6$.

V. N. Bedusarki

Vsesoyuznyy nauchno-issledovatel'skiy i konstruktorskiy institut khimicheskogo mashinostroyeniya.





DOMBROVSKAYA, N.S., i Etc.,

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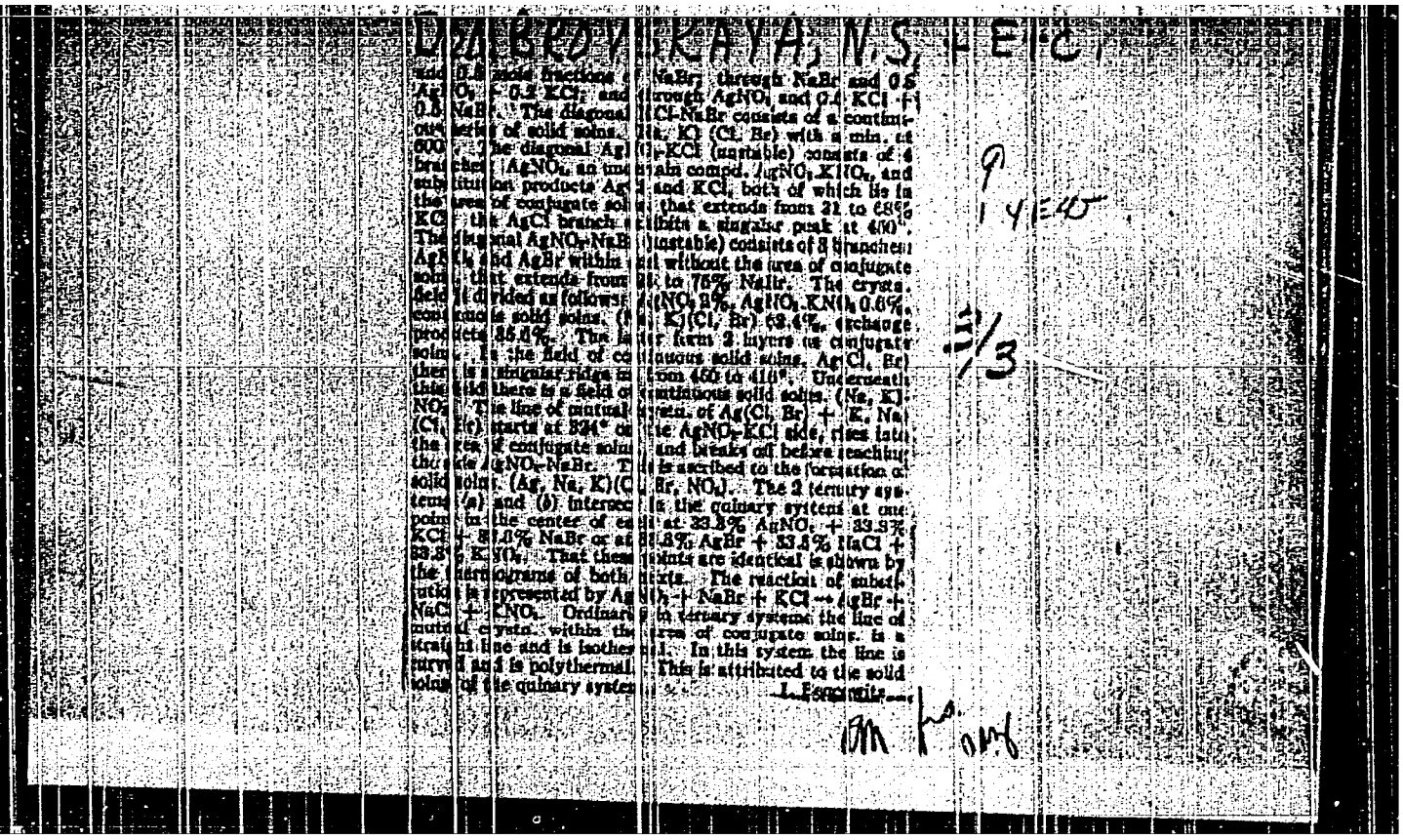

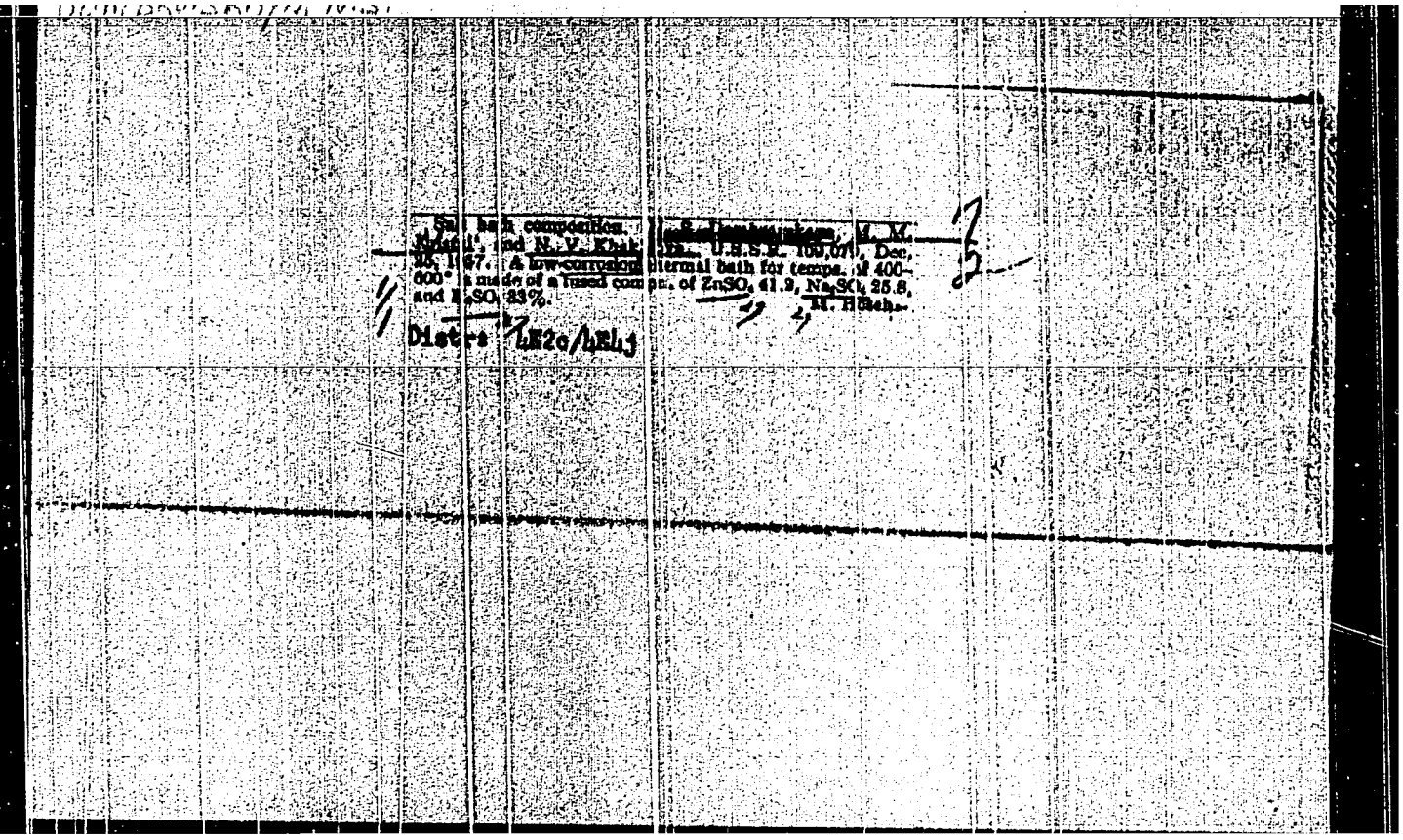

Salt bath compositions. [redacted], M. M. [illegible], and N. V. Khak[illegible], U.S.S.R. 109,071, Dec, 25, 1957. A low-corrosion thermal bath for temps. of 400-600° is made of a fused comp. of $ZnSO_4$ 41.2, Na_2SO_4 25.8, and K_2SO_4 33%.

M. Hirsch

Distr: 4E2c/4E4j

DOMBROVSKIY, N.S.

122-2-29/29

[illegible], D.A., Candidate of Technical Sciences

[illegible] Third Scientific and Technical Conference in Kiyev on the Improvement of the Wear Resistance and Service Life of Machines (Tret'ya Kiyevskaya nauchno-tekhnicheskaya konferentsiya po povysheniyu iznosostoykosti i sroka sluzhby mashin)

(USSR) Vestnik Mashinostroyeniya, 1958, No.2, pp. [illegible] (USSR)

The conference was organised by the Kiyev regional of the NTO Mashprom (The Scientific and Technical Organisation of the Mechanical Engineering Industry) and by the Institute of Mechanics of Building Structures, Ac.Sc. Ukrainian SSR (Institut stroitelnoy mekhaniki AN USSR). 430 delegates representing the major institutions of the Ac.Sc. USSR and of the Ukrainian SSR, the specialised research agencies and the large Soviet plants heard and discussed 90 papers devoted to the study of the mechanism of disintegration of surface layers in machine components and to new methods of improving the wear life of components.

In a paper by Academician S.V. Serensen, entitled "Endurance Related to Wear and Fatigue", a survey of Russian and foreign studies was given with emphasis on fatigue failures caused by wear, both as a result of the mechanical consequences due to

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The Third Scientific and Technical Conference in Kiyev on the Improvement of the Wear Resistance and Service Life of Machines

unequal wear and the formation of clearances in assemblies and as a result of a change in the physical and chemical condition of contact surfaces.

A.D. Grozin, Corresponding Member of the Ac.Sc. Ukrainian SSR, in a paper entitled "The Complex Method of Analysis of Components Working Under the Conditions of Rolling Friction" presented a method which includes the combined use of electron microscope, X-ray diffraction and spectroscopic analyses to judge the condition of the surface layers in association with wear tests and static mechanical tests under tri-axial non-uniform compression at different temperatures. It is claimed that with the help of this method, the relation between the contact endurance strength of steel and the factors defining the condition of the surface can be established.

In a paper "On Temperature Measuring Methods in the Friction Process between Solid Bodies", by S.A. Sukhov, Candidate of Technical Sciences, a method for measuring the temperature gradients in the immediate vicinity of the friction surfaces with the help of a natural thermocouple was presented. Both sliding bodies (pin and ring) are made of the same material, but the pin end face is covered with a thin layer of another metal.

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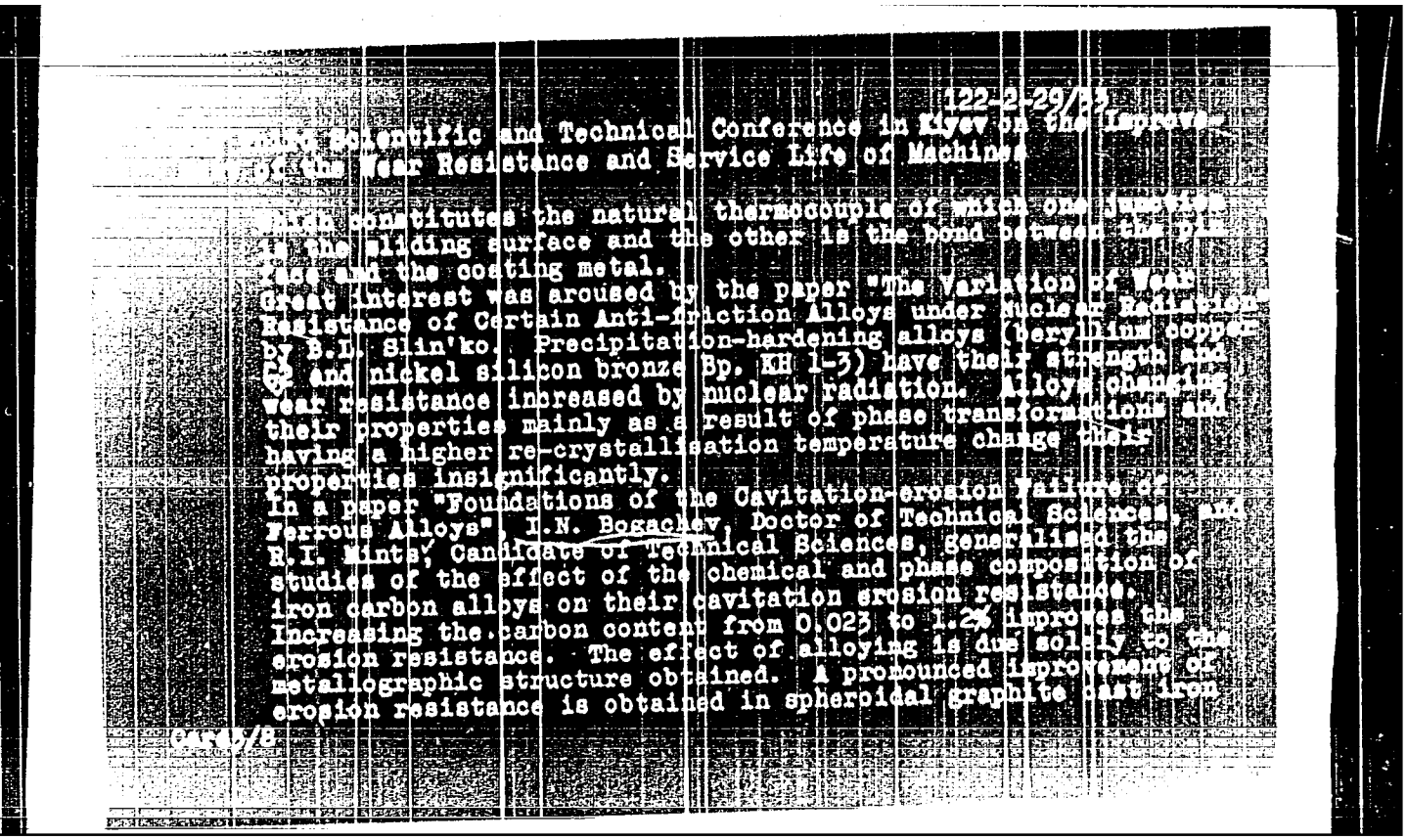

122-2-29/33

...Scientific and Technical Conference in Kiyev on the Improve...
...the Wear Resistance and Service Life of Machines

...which constitutes the natural thermocouple of which one ...
...the sliding surface and the other is the bond between the ...
...ide and the coating metal.
Great interest was aroused by the paper "The Variation of Wear Resistance of Certain Anti-friction Alloys under Nuclear Radiation" by B.I. Slin'ko. Precipitation-hardening alloys (beryllium copper and nickel silicon bronze Bp. KH 1-3) have their strength and wear resistance increased by nuclear radiation. Alloys changing their properties mainly as a result of phase transformations and having a higher re-crystallisation temperature change their properties insignificantly.
In a paper "Foundations of the Cavitation-erosion Failure of Ferrous Alloys", I.N. Bogachev, Doctor of Technical Sciences, and R.I. Mints, Candidate of Technical Sciences, generalised the studies of the effect of the chemical and phase composition of iron carbon alloys on their cavitation erosion resistance. Increasing the carbon content from 0.023 to 1.2% improves the erosion resistance. The effect of alloying is due solely to the metallographic structure obtained. A pronounced improvement of erosion resistance is obtained in spheroidal graphite cast iron

ment of the Wear Resistance and Service Life of Machines

by alloying with 1% nickel and 0.7% molybdenum. Engineer L.A. Chatynyan in his paper "Investigation of the Wear of Nickel Alloys under Dry Friction at Elevated Temperatures" reported the results of his test which showed nickel alloys to have the best wear resistance at high temperatures, whilst the initial hardness is of little consequence. The optimum composition of a new alloy with a high wear resistance at 400-600 °C is given, whilst high-speed steel and ordinary chromium steel have little wear resistance under dry friction at high temperatures. V.P. Grechin, Candidate of Technical Sciences, concluded in his paper "The Heat Resistance of Cast Iron as the Main Factor in its Wear Resistance under Sliding Friction" that the hardness of cast iron at high temperatures (up to 850 °C) determines its wear resistance. Based on numerous studies of various cast irons, recommendations for alloying and for the application of cast irons under different conditions were given.

It was noted by N.I. Kovalenko, Candidate of Technical Sciences, in his paper "The Wear Resistance of Wire Ropes" that the breaking down of a wire rope is caused by an abrasive medium and its failure occurs before fatigue sets in. The author recommended

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...ference in Alyev on the Improve-
...the Wear Resistance and Service Life of Machines

...position of anti-friction metals such as cast iron or ...minum upon steel pulleys. In unlubricated operation, such ...coatings increase the wear life of wire ropes by a factor of 2-3. I.K. Frumin, Candidate of Technical Sciences, in his paper "Alloys for Wear-resistant Hard Facing Deposits", stated the theoretical basis and methods of alloying to obtain the desired results and surveyed the fields of application of different methods of deposition on wearing components.
In his paper, "Electric Slag Method of Hard Facing for Wear Resistance", I.K. Pokhodnya, Candidate of Technical Sciences, suggested the electric slag process for hard facing of different components and concluded that this method is appropriate when large quantities of metal have to be deposited or when large numbers of components require treatment.
M.V. Simonenko, Engineer, suggested in his paper "The Electrolytic Diffusion Method of Making Bi-metal Components" a novel method of manufacturing copper base alloys. The alloying proceeds at a temperature much below the fusion temperature of copper. Great economies are achieved in labour cost and in scarce metals. Small scale and automatic production procedures can be applied. Service

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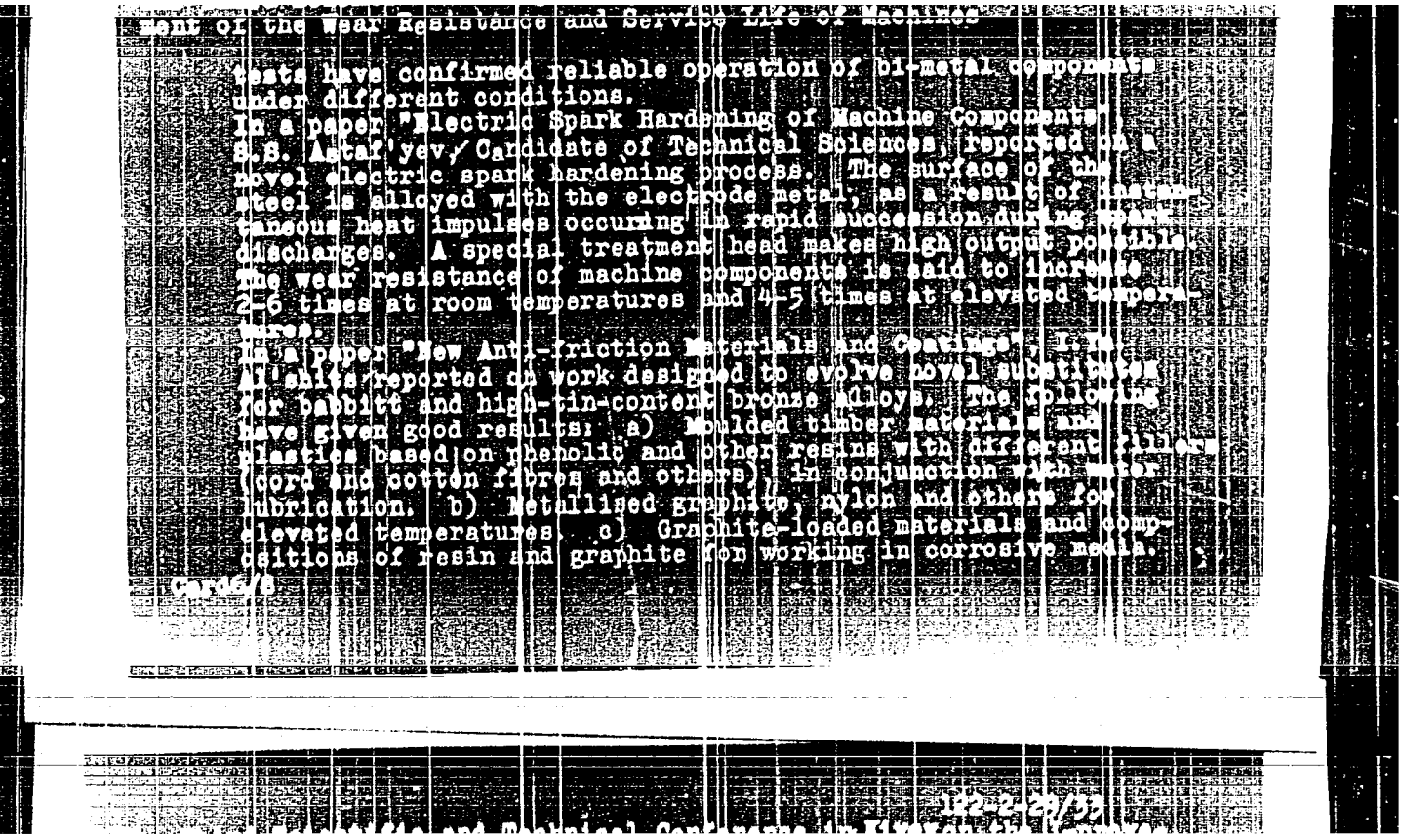

ment of the Wear Resistance and Service Life of Machines

tests have confirmed reliable operation of bi-metal components under different conditions.

In a paper "Electric Spark Hardening of Machine Components" S.S. Astaf'yev, Candidate of Technical Sciences, reported on a novel electric spark hardening process. The surface of the steel is alloyed with the electrode metal, as a result of instantaneous heat impulses occurring in rapid succession during spark discharges. A special treatment head makes high output possible. The wear resistance of machine components is said to increase 2-6 times at room temperatures and 4-5 times at elevated temperatures.

In a paper "New Anti-friction Materials and Coatings" [illegible] reported on work designed to evolve novel substitutes for babbitt and high-tin-content bronze alloys. The following have given good results: a) Moulded timber materials and plastics based on phenolic and other resins with different fillers (cord and cotton fibres and others) in conjunction with water lubrication. b) Metallized graphite, nylon and others for elevated temperatures. c) Graphite-loaded materials and compositions of resin and graphite for working in corrosive media.

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DOMBROVSKAYA, N. S.

24-1-20/26

AUTHORS: Vinogradov, Yu. M., and Dombrovskaya, N. S. (Moscow).

TITLE: Improvement of the anti-seizing properties of steel by chlorination (Povysheniye protivozadirnykh svoystv staley putem khlorirovaniya).

PERIODICAL: Izvestiya Akademii Nauk, Otdeleniye Tekhnicheskikh Nauk, 1958, No.1, pp. 128-130 (USSR).

ABSTRACT: It is shown in this paper that chlorating is promising from the point of view of improving the anti-seizing properties of rubbing parts. Chlorating can be effected in a gaseous medium as well as in a salt bath containing active chlorine compounds. It is important to ensure

Improvement of the anti-seizing properties of steel. 24-1-20/26
(Cont.) films of chemical compounds formed; X-ray diffraction analysis of the chlorinated specimens revealed the presence in the surface layers of the compounds $FeCl_2$ and Fe_2O_3. "Steel 45" specimens which have been thus treated were tested on a 4-roller test machine (Ref.3) MTC-4. The tests were carried out in the dry state, the conical rollers consisted of steel "40" in the non-hardened state, the roller speed was 300 r.p.m. The diameter of the cavity, d in mm, caused by wear applying a load P, kg, was used as a criterion for judging the anti-seizing properties. In Fig.2, p.128 curve 1 (values designated by +) applies for steel in the "raw" state, whilst curves 2 and 3 apply to steels chlorinated respectively at 150°C and 200°C. It can be seen from these results that chlorination has an appreciable anti-seizing effect which is somewhat higher for a treatment temperature of 200°C than for a lower treatment temperature. The character of the disruption during friction of chlorinated metal surfaces also differs from that of non-treated metal. In the latter case friction of clean (unlubricated) metallic surfaces is accompanied by deep plastic deformations, whilst in

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Improvement of the anti-seizing properties of steel. 24-1-20/26
(Cont.)

the case of chlorinated surfaces the disruption is localised inside thin surface layers even at high load values. Figs. 3 and 4 show micro-cuts of cross sections of wear cavities of specimens of non-treated "Steel 45" tested with a load of 17 kg and of chlorinated "Steel 30" tested with a load of 130 kg, both at magnifications of thirty times. The diameter of the wear cavities is almost equal (1.7 mm) but the texture penetrates considerably deeper in the case of untreated specimens. The surface layers of chlorides forming after treatment by the here described method can be easily removed by means of solvents and this is a disadvantage of this method of chlorination. In spite of this, chlorination may prove an effective means for improving the anti-seizing properties of steel. Of particular interest is the combination of processes of chlorination and sulphating in the same way as lubricant additives are used which contain compounds of Cl and S.
There are 4 figures and 3 references, all of which are Russian.

Card 3/3 (Note: This is a complete translation except that the introductory paragraph has been omitted).

SUBMITTED: August 3, 1957.
AVAILABLE: Library of Congress.

Dombrovskaya, N. S.

AUTHORS: Oparina, A. F., Dombrovskaya, N. S. 78-2-23/43

TITLE: The Mutual System of the Thiocyanates and Chlorides of Sodium and Potassium (Vzaimnaya sistema iz rodanidov i khloridov natriya i kaliya).

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 2, pp. 413-424 (USSR).

ABSTRACT: The mutual system Na, K|Cl, CNS was investigated with the employment of methods such as the determination melting point, thermographic investigations, microstructure and X-ray analysis. On the basis of the thermographic and crystallization investigations the following compounds were determined: 1. NaCNS 2. KCNS 3. Uninterruptedly solid solutions of (Na,K) Cl. In this system two eutectic points were determined at 126° C with a composition of 1,8% NaCl, 26,5% NaCNS and 71,7% KCNS and at 132° C with a composition of 4,25 NaCl, 13,5% NaCNS and 82,25% KCNS. A microphotography of potassium- and sodium-thiocyanate was taken of the different phases of the system Na, K|Cl, CNS. At 145° C potassium thicoyanate undergoes a polymorphous transformation which mainly spreads at the edges of the crystal. This transformation was also followed by micro-

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The Mutual System of the Thiocyanates and Chlorides of Sodium and Potassium. 78-2-23/43

photography with double and triple salt-melts with the participation of potassium thiocyanate. The microphotographic results are in agreement with the results of the polythermal methods. Radiographs for potassium thiocyanate and sodium thiocyanate as well as the melt of the mutual system Na, K|Cl, CNS were also produced. There are 15 figures, 6 tables, and 8 references, 8 of which are Slavic.

SUBMITTED: March, 19, 1957

AVAILABLE: Library of Congress

Card 2/2

DOMBROVSKAYA, M.S.

5(2);25(1) PHASE I BOOK EXPLOITATION SOV/2313

Akademiya nauk SSSR. Institut mashinovedeniya

Povysheniye stoykosti detaley mashin /sul'fidirovaniye/; sbornik statey (Increasing the Wear Resistance of Machine Parts /Sulfurization/; Collection of Articles) Moscow, Mashgiz, 1959. 126 p. Errata slip inserted. 4,500 copies printed.

Ed. (Title page): M. M. Khrushchov, Doctor of Technical Sciences; Ed. (Inside book): A.G. Nikitin, Engineer; Tech. Ed.: V.D. El'kind; Managing Ed. for Literature on General Technical and Transport Machine Building (Mashgiz): K.A. Ponomareva, Engineer.

PURPOSE: This collection of articles is intended for engineering and technical workers of machine-building and overhauling plants.

COVERAGE: This book presents results of investigations of methods to increase the resistance of machine parts to seizure. A new method of sulfurization which improves the friction behavior of cast iron and steel and an analysis of the effect of sulfurization on the antifriction properties and wear of metal are given. These articles are the transactions of a seminar held at the Institute of Mechanical Engineering of the Academy of Sciences, USSR, in December 1956.

TABLE OF CONTENTS:

Dombrovskaya, N.S., Doctor of Chemical Sciences, Ye. A. Alekseyeva, and S.V. Khakhlova, Engineers. Selecting Salt Baths for Sulfurization of Iron Alloys 62

The authors recommend the use of a salt bath as the most controllable and uniform method of sulfurization. They develop the compositions of these baths and the optimum temperatures of operation.

Zinovich, N.S., Engineer. Investigation of the Sulfurization Process 79

The author discusses sulfurization in the liquid bath, baths operating at medium and low temperatures, control of the process, x-ray and metallographic investigations, hardness, work-in, and wear resistance tests.

Zelenova, V.D., Engineer. X-ray Analysis of the Surface Layer of Sulfurized Specimens 95

The author investigated various bath compositions by x-ray analysis in order to evaluate the character of sulfurization in respect to simultaneous formation of nitrades.

Gil'man, T.P., Engineer. Sulfurization of Iron Carbide With Gases

The author describes a process in which a sulfur suspension in mineral oil and ammonia are introduced together into the furnace. This process is a combined sulfurizing and cyaniding process having several advantages in comparison with other sulfurization methods according to the author.

Gil'man, T.P., Engineer. Sulfurization of Bushings Made of Iron Powder by Introducing Sulphur Into the Charge 105

The author describes the results of experiments using a method claimed by the author to be new. The work was carried out at Stalingrad Tractor Plant in collaboration with NATI (Automobile and Tractor Scientific Research Institute). The author stresses the advantages of this process which gives a uniform distribution of sulfides in the metal.

DOMBROVSKAYA, N.S., doktor khimicheskikh nauk; ALEKSEYEVA, Ye.A., inzh.

Increasing the wear resistance of metals by chemical heat treatment. Trudy NIIKHIMMASH no.27:142-149 '59. (MIRA 14:8)
(Case hardening)

5(4)
AUTHORS: Khakhlova, N. V., Dombrovskaya, N. S. SOV/78-4-4-36/44

TITLE: The Behavior of the Ternary System of Sodium-, Potassium- and Zinc Sulphates in the Melting Process (Plavkost' v troynoy sisteme iz sul'fatov natriya, kaliya i tsinka)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 4, pp 920-927 (USSR)

ABSTRACT: The authors investigated the behavior of the ternary system of sodium-, potassium-, and zinc sulphates in the melting process within the temperature range 400-600°. The initial salts Na_2SO_4, K_2SO_4 and $ZnSO_4$ were obtained in the highest degree of purity by recrystallizations. According to publications the salts have the following melting points: Na_2SO_4: 884°, K_2SO_4: 1076° and $ZnSO_4$: [730°]. The authors checked the binary systems K_2SO_4-$ZnSO_4$, Na_2SO_4-$ZnSO_4$ and Na_2SO_4-K_2SO_4. The liquidus surface of the ternary system Na_2SO_4-K_2SO_4-$ZnSO_4$ was also investigated. The surface consists of ten crystallization ranges: solid solutions of sodium- and potassium sulphates; solid

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The Behavior of the Ternary System of Sodium-, Potassium- and Zinc Sulphates in the Melting Process

solutions of zinc sulphate on the basis of β-Na_2SO_4; $Na_2SO_4 \cdot ZnSO_4$; $Na_2SO_4 \cdot 3ZnSO_4$; $ZnSO_4$; $K_2SO_4 \cdot 2ZnSO_4$; $K_2SO_4 \cdot ZnSO_4$; phase B; phase C and the ternary compound $Na_2SO_4 \cdot K_2SO_4 \cdot 2ZnSO_4$. The size of the crystallization ranges is given in table 2. The melting diagram of the ternary system Na_2SO_4-K_2SO_4-$ZnSO_4$ is contained in figure 1. The range of the ternary compound $Na_2SO_4 \cdot K_2SO_4 \cdot 2ZnSO_4$ attains a maximum at 420°C, where the molecular composition of the components is 1:1:2. The refractive index of the compound differs from the refractive indices of the components. The refractive indices were determined by M. N. Lyashenko at the In-t obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the Academy of Sciences, USSR). The authors plotted the thermograms of the melts, which are represented in figures 2 and 3. An additional thermal effect at 365° appears in the thermograms of the ternary

The Behavior of the Ternary System of Sodium-, Potassium- and Zinc Sulphates in the Melting Process

compound. The microstructure of the melts was investigated and is represented in figure 4. The ternary compound $Na_2SO_4 \cdot K_2SO_4 \cdot 2ZnSO_4$ has the following refractive indices:

Ng = 1.569, Nm = 1.546 and Np = 1.533.

These refractive indices and those of the components are given in a table. A characterization of the sections under investigation according to their melting points is given in another table. The compositions and melting points of the eutectic and transition points are also tabulated. There are 4 figures, 4 tables, and 6 references, 5 of which are Soviet.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskogo mashinostroyeniya (All-Union Scientific Research Institute of Chemical Machine-Building)

SUBMITTED: December 23, 1957

5(4)

AUTHORS: Bruyle, Ye. S., Dombrovskaya, N. S. SOV/78-4-5-36/46

TITLE: The Solubility Diagram of the Three-Component System $KNaC_4H_4O_6$-NaOH-H_2O at 25° (Diagramma rastvorimosti troynoy sistemy $KNaC_4H_4O_6$-NaOH-H_2O pri 25°)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 5, pp 1165-1169 (USSR)

ABSTRACT: Solubility in the three-component system $KNaC_4H_4O_6$-NaOH-H_2O was investigated. The isothermal line for solubility, the specific weight, and the refraction indices of the system are given in a table. As initial materials $KNaC_4H_4O_6$-$4H_2O$ (Seignette salt) was used per analysis. The investigation of the isothermal lines was carried out in the micro-thermostat TB-15 at 25±0.05°. The solubility diagram of this system is shown by figure 1. It was found that the solubility curve consists of three branches. The first of them corresponds to the crystallization of $KNaC_4H_4O_6$-$4H_2O$. Figure 2 (a - g) shows the microphotographs of the crystals of the

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separated solid phase $KNaC_4H_4O_6 \cdot 4H_2O$ (a), $KNaC_4H_4O_6 \cdot 3H_2O$ (b), $2NaOH \cdot 3KNaC_4H_4O_6$ (g) and the solid phase of the point P (u). It was found that an increase of NaOH-concentration up to 11% by weight a dehydration of $KNaC_4H_4O_6 \cdot 4H_2O$ up to $KNaC_4H_4O_6 \cdot 3H_2O$ occurs. At a concentration of 13 % by weight NaOH the compound $2NaOH \cdot 3KNaC_4H_4O_6$ is formed. The solubility of the compound $KNaC_4H_4O_6$ was investigated up to 32 % by weight NaOH . At more than 32 % by weight NaOH, the solution becomes viscous, so that separation of the solid phase is rendered more difficult. Figure 3 shows the curves of the specific weight and the refraction indices of the system $KNaC_4H_4O_6$-NaOH-H_2O at 25°. Thermal stability in the compounds $KNaC_4H_4O_6 \cdot 4H_2O$ and $2NaOH \cdot 3KNa \cdot C_4H_4O_6$ was investigated. The thermograms are shown in figures 4 and 5. The thermograms show that at 25°, 55 - 61°, 89° and 112 - 120° a complete

The Solubility Diagram of the Three-Component System $KNaC_4H_4O_6$-NaOH-H_2O at 25° SOV/78-4-5-36/46

dehydration of the Seignette salt occurs in the compound. At temperatures higher than 220° the compound carbonizes partly. The thermogram of the compound $2NaOH.3KNaC_4H_4O_6$ shows (Fig 5) that separation of the hygroscopic water takes place at 117°C, and that partial carbonization occurs at temperatures above 253°. There are 5 figures, 1 table, and 3 references, 1 of which is Soviet.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy i konstruktorskiy institut khimicheskogo mashinostroyeniya (All-Union Scientific Research- and Design Institute for Chemical Machines Construction)

SUBMITTED: December 28, 1957

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5(2)

AUTHORS: Bruyle, Ye. S., Dombrovskaya, N. B. SOV/78-4-9-28/44

TITLE: The Solubility Diagram of the Quaternary System PbO - $KNaC_4H_4O_6$ - NaOH - H_2O at 25°

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 9, pp 2091-2099 (USSR)

ABSTRACT: In the production and use of lead-Seignette electrolytes for electrolytic lead coating disturbing sediments occur. The authors investigated the composition of these precipitates and found the area of unsaturated solutions in which these precipitates cannot occur. The ternary systems PbO - $KNaC_4H_4O_6$ - H_2O, and $KNaC_4H_4O_6$ - NaOH - H_2O had already been examined by the authors on an earlier occasion (Refs 6, 7). The present paper briefly reviews those results and then reports of the investigation of the ternary system PbO - NaOH - H_2O (Table 1, Fig 1) as well as the quaternary system mentioned in the title. The solid PbO phase of the ternary system was examined electronographically by K. V. Shishokina (Table 2). In the case of NaOH concentrations between 47.06 and 50.86 % by weight a colorless crystalline precipitate was

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The Solubility Diagram of the Quaternary System PbO - $KNaC_4H_4O_6$ - NaOH - H_2O at 25° SOV/78-4-9-28/44

observed (Fig 2a). An analysis showed that it was $Na[Pb(OH)_3]$.

The results of the investigation of the quaternary system are to be found in table 3 and figure 3. Six crystallization ranges were found: I. $PbO.KNaC_4H_4O_6$, II. $2NaOH.3KNaC_4H_4O_6$, III. $KNaC_4H_4O_6.3H_2O$, IV. $KNaC_4H_4O_6.4H_2O$, V. $3KNaC_4H_4O_6.3H_2O$, and VI. PbO . Compound I was investigated crystalloptically by M. N. Lyashenko (Fig 2b) and radiographically by V. G. Kuznetsov and Z. V. Popova (Fig 4, Table 3). Furthermore, the thermogram was made (Fig 5). Table 4 lists the solubility isotherms of the quaternary system at 25°. By means of the solubility diagram plotted according to E. Jänecke (Fig 3) the area of the unsaturated solutions in which no precipitates disturbing the electrolysis occur can be determined. There are 5 figures, 4 tables, and 9 references, 7 of which are Soviet.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy i konstruktorskiy institut khimicheskogo mashinostroyeniya (All-Union Scientific Research and Designing Institute of Chemical Machine Building)

SUBMITTED: May 7, 1958

Card 2/2

5(2,4)

AUTHORS: Dombrovskaya, N. S., Alekseyeva, Ye. A. SOV/20-127-5-24/58

TITLE: A Mutual 7-Component System of 16 Salts of Li, Na, Rb, Ti || Br, Cl, NO_3, SO_4 in Melts

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 5, pp 1019-1022 (USSR)

ABSTRACT: From the practical point of view the investigation of multi-component systems is of high importance for the investigation of natural and technological processes. A complete investigation of such systems is very complicated. Methods of a simpler solution of these problems were shown already in the thirties by N. S. Kurnakov and his collaborators (Refs 1-4). The composition of the mentioned systems is represented geometrically by n-dimensional polytopes. The system mentioned in the title which was investigated by the authors contains the following systems of components:

16 systems of 1-components of the type AX
48 binary systems of the type AX — BX
32 ternary systems of the type A || X, Y, Z
36 ternary mutual systems of the type A, B || X, Y
8 quaternary systems of the type A || X, Y, Z, T

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A Mutual 7-Component System of 16 Salts of Li, Na, Rb, Ti || Br, Cl, NO_3, SO_4 in Melts

SOV/20-127-5-24/58

48 quaternary mutual systems of the type A, B || X, Y, Z
12 quintary mutual systems of 8 salts A, B || X, Y, Z, T
16 quintary mutual systems of 9 salts A, B, C || X, Y, Z
8 hexadic mutual systems of 12 salts A, B, C || X, Y, Z, T

Determination of the singular star. Such an (equilibrium) star is determined by the stable diagonals of the ternary mutual systems, by the stable diagonal triangles of the quaternary mutual systems, by the stable diagonal tetrahedra of the quintary mutual systems etc. (Refs 2-4). It is practical to use the table of indices of the polytope peaks which were used for the geometrical representation of the compositions of multi-component systems: the peak indices of multi-component systems are determined by the number of stable diagonals passing through the polytope peak concerned. Table 1 shows the peak indices of the mutual systems from 6, 8, 9, and 12 salts. The mutual system (as mentioned in the title) is a 6-dimensional polytope (Ref 4). Table 2 shows the peak indices for this polytope. The singular star contains the most stable

A Mutual 7-Component System of 16 Salts of Li, Na, Rb, Tl || Br, Cl, NO_3, SO_4 in Melts

SOV/20-127-5-24/58

"base" tetrahedron 9-5-5-9 Li_2SO_4-NaCl - $RbNO_3$ - TlBr (first mentioned by V. P. Radishchev). It is placed in the center of a cube and 6 pentatopes have it in common in the centers of the cube-facets; 12 base pentatopes are placed in the center of quadratic cycles; 30 hexatopes are in the middle of the edges; 20 heptatopes are at the peaks of the squares and of the 2 prolongations. Figure 1 shows the singular star of the system mentioned in the title. It has a double symmetry with a center of symmetry. The mentioned system may be attributed to the class of the reversible-mutual systems. There are 1 figure, 2 tables, and 8 Soviet references.

PRESENTED: April 4, 1959, by I. I. Chernyayev, Academician

SUBMITTED: March 30, 1959

Card 3/3

DOMBROVSKAYA, N. S. (doctor of Technical Sciences), and VI. I. [illegible]

Development of Methods for the Thermochemical Treatment of Metal Surfaces for the Purpose of Increasing Their Wear Resistance

Povysheniye iznosostoykosti i sroka sluzhby mashin. t. 2 (Increasing the Wear Resistance and Extending the Service Life of Machines. v. 2) Kiyev, Izd-vo AN UkrSSR, 1960. 290 p. 3,000 copies printed. (Series: Its: Trudy, t. 2)

Sponsoring Agency: Vsesoyuznoye nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti, Tsentral'noye i Kiyevskoye oblastnoye pravleniya. Institut mekhaniki AN UkrSSR.

Editorial Board: Resp. Ed.: B. D. Gronin; Deputy Resp. Ed.: D. A. Draygor; M. P. Braun, I. D. Faynerman, I. V. Kragel'skiy; Scientific Secretary: M. L. Barabash; Ed. of v. 2: ya. A. Samokhvalov; Tech. Ed.: N. I. Rakhlina.

COVERAGE: The collection contains papers presented at the Third Scientific Technical Conference held in Kiyev in September 1957 on problems of increasing the wear resistance and extending the service life of machines. The conference was sponsored by the Institut stroitil'noy mekhaniki AN Ukr. R (Institute of Structural Mechanics of the Academy of Sciences Ukrainian SSR), and by the Kiyevskaya oblastnaya organizatsiya nauchno-tekhnicheskogo obshchestva mashinostroitel'noy promyshlennosti (Kyev Regional Organization of the Scientific Technical Society of the Machine-Building Industry).

DOMBROVSKAYA, N. S

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PHASE I BOOK EXPLOITATION SOV/5488

Moscow. Vsesoyuznyy nauchno-issledovatel'skiy i konstruktorskiy institut khimicheskogo mashinostroyeniya.

Materialy v khimicheskom mashinostroyenii (Materials in Chemical Machine Building) Moscow, Informatsionno-izdatel'skiy otdel, 1960. 143 p. (Series: Its: Trudy, vyp. 34) 3,000 copies printed.

Sponsoring Agency: Gosudarstvennyy komitet Soveta Ministrov SSSR po avtomatizatsii i mashinostroyeniyu and Vsesoyuznyy nauchno-issledovatel'skiy i konstruktorskiy institut khimicheskogo mashinostroyeniya NIIKhIMMASh.

Ed. (Title page): V. K. Fedorov, Candidate of Technical Sciences; Editorial Council: Chairman: V. B. Nikolayev; Deputy Chairman: Yu. M. Vinogradov, Candidate of Technical Sciences; B. N. Borisoglebskiy, A. N. Goncharov, Yu. G. Popandopulo, I. N. Yukalov, Candidate of Technical Sciences, and O. N. Yusova, Candidate of Technical Sciences; Ed.: V. I. Glukhov; Tech. Ed.: P. A. Vahivtsev.

PURPOSE : This collection of articles is intended for technical personnel in chemical machine building and other branches of the machine and instrument industry.

COVERAGE: The collection deals with the results of investigations on the mechanical, corrosive, and engineering qualities of certain alloys. Also discussed are heat-treatment regimes, the phase composition of stainless steels, methods of checking products, and new designs of apparatus used in checking. References accompany each article.

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AVAILABLE: Library of Congress

5.4110

AUTHORS: Khakhlova, N. V., Dombrovskaya, N. S.

69028
S/078/60/005/04/026/040
B004/B016

TITLE: The Ternary System $Na_2Cl_2 - K_2Cl_2 - BaSO_4$

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol 5, Nr 4, pp 920 - 924 (USSR)

ABSTRACT: Figure 1 illustrates the system mentioned in the title as a stable triangular section through the quaternary reciprocal system Na,K,Ba ‖ Cl,SO_4. The data of the binary systems of which $Na_2Cl_2 - K_2Cl_2$ has been investigated by N. S. Kurnakov and S. F. Zhemchushnyy (Ref 3), and Ye. K. Akopov and A. G. Bergman (Ref 4), are briefly mentioned. The liquidus surface of the ternary system was investigated in five sections (Fig 2). Figure 3 shows the line of the joint crystallization of $Na_2Cl_2 - K_2Cl_2$, figure 4 the thermogram taken on the N. S. Kurnakov pyrometer of the type FPK-55, and figure 5 the microstructures of the melts 5.0% $BaSO_4$ + 47.5% Na_2Cl_2 + 47.5% K_2Cl_2 and 15.0% $BaSO_4$ + + 42.5% Na_2Cl_2 + 42.5% K_2CL_2. The experimental data are summarized in a table. The system consists of two regions: one region of continuous solid solutions of (Na,K)Cl and the other of

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The Ternary System Na_2Cl_2 - K_2Cl_2 - $BaSO_4$

S/078/60/005/04/026/040
B004/B016

$BaSO_4$. The line of the common crystallization of both regions has a minimum at 625° and at a composition of 8.6% $BaSO_4$, 45.7% Na_2Cl_2 and 45,7% K_2Cl_2. The decomposition of the solid solutions of (Na,K)Cl sets in at 502°. Mention is made of M. S. Golubeva (Ref 7) and O. S. Dombrovskaya (Ref 2). There are 5 figures, 1 table, and 7 Soviet references.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy i konstruktorskiy institut khimicheskogo mashinostroyeniya (All-Union Scientific Research and Design Institute of Chemical Engineering)

SUBMITTED: December 16, 1958

Card 2/2

87336

S/078/60/005/011/023/025/XX
B004/B060

5.4110 2209, 1043, 1273

AUTHORS: Dombrovskaya, N. S., Alekseyeva, Ye. A.

TITLE: Methods of Decomposing Diagrams of the Composition of Multicomponent Systems According to the Indices of the Peaks of Prisms of the First Kind

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol.5, No. 11, pp. 2612-2620

TEXT: The following definition is given: A prism of the rth kind is an n-dimensional polytope, formed by the parallel shift of an n-r dimensional polytope in independent directions in an n-dimensional space. The authors were concerned with the problem of studying such multicomponent systems as frequently arise in chemical technology. They proceeded from papers by N. S. Kurnakov (Ref. 1), A. G. Bergman, V. P. Radishchev (Refs. 2-5), which had dealt with the triangulation of diagrams of the chemical equilibrium and the search for singular stars. The singular stars of the chemical diagram constitute the geometrical representation of the chemical interaction between the components of the system. This is illustrated by

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Methods of Decomposing Diagrams of the Composition of Multicomponent Systems According to the Indices of the Peaks of Prisms of the First Kind

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B004/B060

Fig. 1, a diagram of the reciprocal ternary system A,B || X,Y. This is a cut through the tetrahedron of the quaternary system A - B - X - Y, brought about by the formation of the binary compounds AX, BX, AY, BY. The square formed by a plane cut is divided by the stable diagonal AY - BX into two stable cells, i.e., two triangles each of which represents a ternary system in the case of irreversibility of reaction. The exchange reaction is denoted in the square by the point O of conversion where the stable and the unstable diagonal intersect in conformity with the reaction $AX + BY \longrightarrow AY + BX$. The stability of the diagonal is determined from the thermal data or the character of the liquidus surface. After a thorough description of the conventional method of decomposing complicated diagrams, which requires practice in spatial representation, the authors introduce their simplified method, as recommended in Ref. 10. Decomposition is performed on the basis of the peak indices. An index table is utilized for reciprocal systems of the 2/n type. The first row is characterized by the natural series 1,2,3,...,n, and the second row by the inverse series n,...,3,2,1. Table 2 holds for the singular star in the system Na,K || F,Cl,Br,I (Fig. 4):

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Methods of Decomposing Diagrams of the Composition of Multicomponent Systems According to the Indices of the Peaks of Prisms of the First Kind

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Indices of peaks					
8	I	Br	Cl	F	Σ
Na	0	1	2	3	6
K	3	2	1	0	6
Σ	3	3	3	3	12

The pentatope which contains the zero peak NaI is cut off by means of the tetrahedron with the peak indices 1,2,3 of the first row and index 3 of the second row. This constitutes the tetrahedron NaF - NaCl - NaBr - KI. Pentatope NaF - NaCl - NaBr - NaI - KI is obtained. The tetrahedron for cutting off the pentatope with the zero peak KF has the index 3 of the first row and the indices 3,2,1 of the second row. The common edge of the two tetrahedra has the largest indices 3 - 3, i.e., NaF - KI. The third tetrahedron, finally, has the edge 3 - 3 and two peaks with the remaining largest indices 2 - 2. The following stable diagonal tetrahedra are thus formed: 1) 123 - 3; 2) 23 - 32; 3) 3 - 321. The stable pentatope cells have the indices 1) 0123 - 3; 2) 123 - 32; 3) 23 - 321; 4) 3 - 3210. The stable cells are established by a nondiagonal transition from the largest index of the 1st row to the largest index of the 2nd row, as shown in Table 3. The same procedure is illustrated by the Li,Na,K,Rb,Cs || Cl,I system (Fig. 7). Table 6 gives

Methods of Decomposing Diagrams of the Composition of Multicomponent Systems According to the Indices of the Peaks of Prisms of the First Kind

the indices, while Table 8 shows how to find the stable cells. There are 7 figures, 7 tables, and 11 references: 10 Soviet and 1 German.

SUBMITTED: October 9, 1959

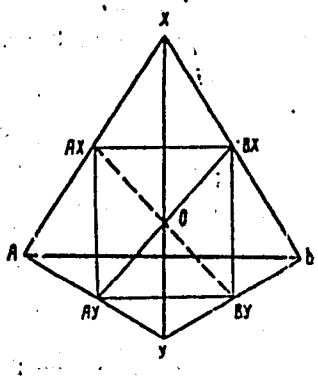

Рис. 1

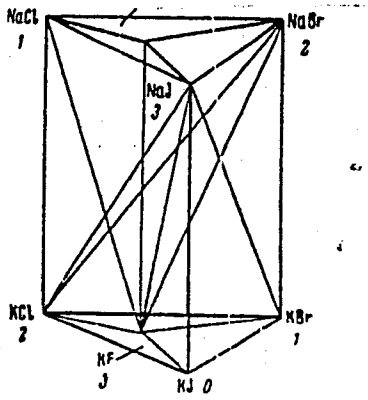

Рис. 4

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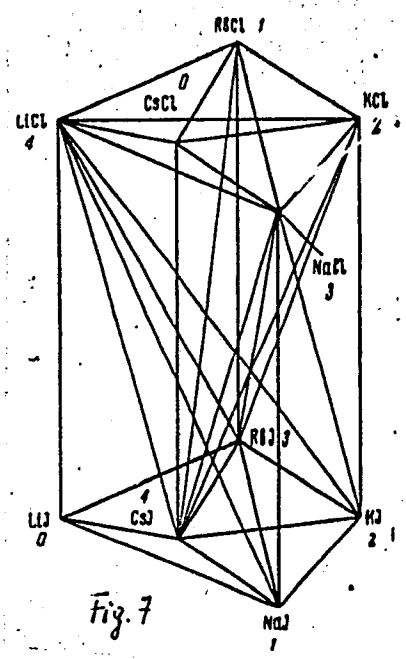

Fig. 7

Таблица 3

	J	Br	Cl	F	J	Br	Cl	F	J	Br	Cl	F	J	Br	Cl	F
№	0	1	2	3	0		2	3	0	1		3	0	1	2	3
K	3	2	1	0	3		1	0	3	2		0	3	2	1	0

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10	Cs	Rb	K	Na	Li	Σ
Cl	0	1	2	3	4	10
J	4	3	2	1	0	10
Σ	4	4	4	4	4	20

Table 6

Таблица 8

a) Возможные переходы и стабильные ячейки

01234	0 234	01 34	0124	01234
43210	43210	43210	432 0	43210

b) Стабильные ячейки

1) 01234-4	2) 1234-43	3) 234-432	4) 34-4321	5) 4-43210

Legend to Table 8: a) possible transitions and stable cells; b) stable cells.

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S/078/60/005/011/024/025/XX
B004/B060

AUTHORS: Khakhlova, N. V., Dombrovskaya, N. S.

TITLE: The Singular Star of the Five-component Reciprocal System From Nine Salts Li, Na, Rb ‖ Cl, NO_3, SO_4

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 11, pp. 2621 - 2629

TEXT: The authors wanted to find out the singular star (in accordance with N. S. Kurnakov) in the system Li, Na, Rb ‖ Cl, NO_3, SO_4, which is represented in Fig. 1 as a four-dimensional prism of the 2nd kind. The nine peaks of the prism stand for the pure salts, the 18 edges correspond to the binary systems, the six triangles to the ternary systems, the nine square edges to the reciprocal ternary systems, and the six prisms to the quaternary reciprocal systems. In the six reciprocal ternary systems, the stable diagonals may be determined from the thermal effects of the reaction (Table 1). Each prism peak is traversed by a definite number of diagonals. The stability of the component concerned is characterized by

The Singular Star of the Five-component Reciprocal System From Nine Salts Li, Na, Rb ‖ Cl, NO_3, SO_4

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the number of diagonals. Li_2SO_4 exhibits four stable diagonals. NaCl has three, $RbNO_3$ three, $LiNO_3$ two, Na_2SO_4 two, $NaNO_3$ one, LiCl none, Rb_2SO_4 none. LiCl and Rb_2SO_4 whose peaks are not traversed by any diagonal, are the most active salts. The free peaks are cut off, and the stable base triangle $Li_2SO_4/2$ - NaCl - $RbNO_3$ is finally found (Fig. 2). This triangle was studied experimentally. The crystal formation was studied by X-ray spectrum analysis. The latter was performed at the Institut obshchey i neorganicheskoy khimii Akademii nauk SSSR (Institute of General and Inorganic Chemistry, Academy of Sciences USSR) by Z. V. Popova under the supervision of V. G. Kuznetsov. Eight cuts were studied, whose diagram, projected onto the liquidus surface, is shown in Fig. 5. The liquidus surface of the base triangle was found to consist of five fields: 1) Li_2SO_4; 2) NaCl; 3) a small field $RbNO_3$; 4) a field which is ascribed to compound $Li_2SO_4 \cdot Rb_2SO_4$; 5) a field of the X phase (according to

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The Singular Star of the Five-component Reciprocal System From Nine Salts Li, Na, Rb ‖ Cl, NO_3, SO_4

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M. N. Zakhvalinskiy: $4Li_2SO_4 \cdot Rb_2SO_4$). Though the system investigated belongs to the type of irreversible reciprocal systems, it has a certain degree of reversibility since (a) the ternary eutectic point (145°C) contains, in equilibrium with the melt, three solid phases of the initial components; (b) $Li_2SO_4 \cdot Rb_2SO_4$ appears as an exchange product, which again disappears at the transition point (200°C). V. P. Radishchev, Ye. A. Alekseyeva, M. A. Klochko, A. G. Bergman, Ye. K. Akopov, and V. P. Blidin are mentioned. There are 7 figures, 3 tables, and 9 references: 7 Soviet, 1 US, and 1 British.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy i konstruktorskiy institut khimicheskogo mashinostroyeniya (All-Union Design and Scientific Research Institute of Chemical Machinery)

SUBMITTED: July 27, 1959

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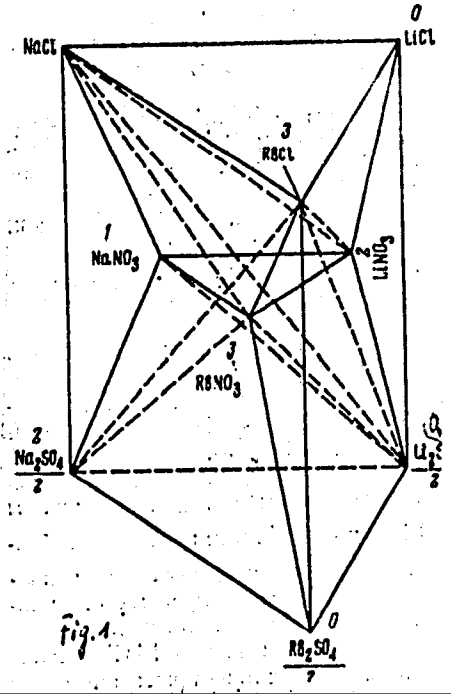

fig.1

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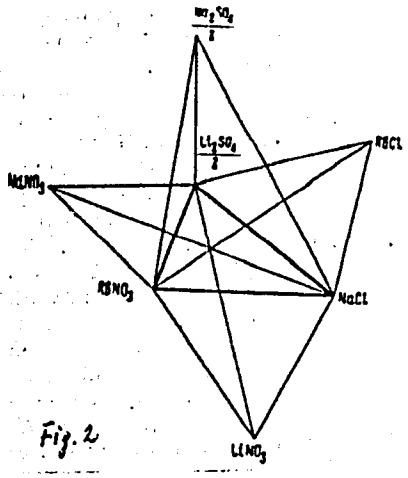

Fig. 2

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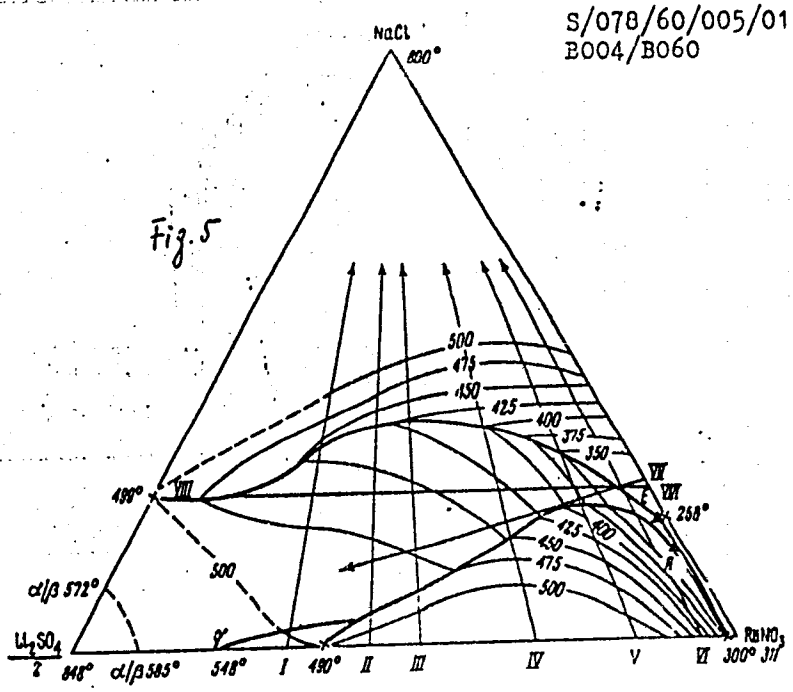
Fig. 5



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B004/B060

Table 1

а) Система	б) Стабильная диагональ	в) Тепловой эффект реакции обмена ккал/г-экв	г) Система	б) Стабильная диагональ	в) Тепловой эффект реакции обмена, ккал/г-экв
Li, Rb ‖ Cl, SO_4	$\frac{Li_2SO_4}{2}$ — RbCl	7,15	Na, Rb ‖ Cl, NO_3	NaCl — $RbNO_3$	1,3
			Li, Na ‖ NO_3, SO_4	$\frac{Li_2SO_4}{2}$ — $NaNO_3$	1,01
Li, Na ‖ Cl, SO_4	$\frac{Li_2SO_4}{2}$ — NaCl	6,5	Li, Rb ‖ NO_3, SO_4	$\frac{Li_2SO_4}{2}$ — $RbNO_3$	2,91
Na, Rb ‖ Cl, SO_4	$\frac{Na_2SO_4}{2}$ — RbCl	0,6	Na, Rb ‖ NO_3, SO_4	$\frac{Na_2SO_4}{2}$ — $RbNO_3$	1,9
Li, Rb ‖ Cl, NO_3	$LiNO_3$ — RbCl	4,24			
Li, Na ‖ Cl, NO_3	$LiNO_3$ — NaCl	5,54			

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B004/B060

Legend to Table 1. (a) system, (b) stable diagonal, (c) thermal effect of the exchange reaction kcal./g-equiv.

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5.4110

68610

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B011/B005

AUTHORS: Dombrovskaya, N. S., Alekseyeva, Ye. A. Khokhlova, N. V., Posypayko, V. I.

TITLE: The Basal Tetrahedron 1/2 Li_2SO_4 — NaCl — $RbNO_3$ — TlBr in the 7-Component Reciprocal System Li, Na, Rb, Tl || Br, Cl, NO_3, SO_4

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 130, Nr 5, pp 1027-1029 (USSR)

ABSTRACT: The singular point of the reciprocal system of 16 salts Li, Na, Rb, Tl || Br, Cl, NO_3, SO_4 (Ref 1) determining the direction of the exchange reactions is described. The position of the most stable basal tetrahedron 1/2 $LiSO_4$ — NaCl — $RbNO_3$ — TlBr was determined in the center of the cube orienting the singular point. Only 4 of its diagonals are fully stable: TlBr — $RbNO_3$; TlBr — 1/2Li_2SO_4; $RbNO_3$ — NaCl and NaCl — 1/2Li_2SO_4. The stability of the diagonal TlBr — NaCl is less certain since the solid solutions Tl(Br,Cl) and Na(Br,Cl) occur in the system Na, Tl || Br,Cl. M. N. Zakhvalinskiy (Ref 2) found the presence

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68610

The Basal Tetrahedron 1/2 Li_2SO_4 – NaCl – $RbNO_3$ – TlBr in the 7-Component Reciprocal System Li, Na, Rb, Tl ‖ Br, Cl, NO_3, SO_4

S/020/60/130/05/020/061
B011/B005

of 2 complex compounds on the diagonal $RbNO_3$—$1/2Li_2SO_4$ in lithium- and rubidium salts. They are presumably: $Li_2SO_4 \cdot Rb_2SO_4$ (1:1) and $4Li_2SO_4 \cdot Rb_2SO_4$ (4:1). The base of the tetrahedron is formed by the ternary system 1/2 Li_2SO_4 — —NaCl—$RbNO_3$. Besides the 3 crystallization fields of the components, this system contains 2 additional fields which correspond to the binary compounds mentioned. Besides the 4 crystallization volumes of the components, the investigated part of the tetrahedron contains 2 relatively small volumes of the complex compounds of lithium- and rubidium sulfate (1:1 and 4:1). Rubidium sulfate is the exchange product between Li_2SO_4 and $RbNO_3$. The 6 crystallization volumes meet in 2 quaternary points: the eutectic and the transition point lying in the "rubidium" corner of the diagram. Table 1 shows temperatures and compositions of the multiple points of the

Card 2/4

The Basal Tetrahedron 1/2 Li_2SO_4 — NaCl — $RbNO_3$ - TlBr in the 7-Component Reciprocal System Li, Na, Rb, Tl || Br, Cl, NO_3, SO_4

S/020/60/130/05/020/061
B011/B005

ternary systems and of the quaternary system. Figure 1 shows an evolvement, figure 2 a perspective representation of the tetrahedron. The composition of the ternary and quaternary eutectic and transition points was determined by graphic constructions; the temperatures were determined by recording the heating curves on the recording pyrometer of N.S.Kurnakov. In conclusion, the following can be said about the type of the 7-component system of 16 salts: the tetrahedron investigated determines the reaction direction in a way similar to the "basal" triangle in a quinary reciprocal system of 9 salts (Ref 3), and also similar to the stable diagonal triangles in a quaternary reciprocal system of 6 salts (Ref 4), and finally similar to the stable diagonal of the square of a ternary reciprocal system of 4 salts. By means of an experimental determination of the fusibility of the system 1/2 Li_2SO_4 — - NaCl — $RbNO_3$ — TlBr, it was ascertained that the reciprocal

68610

The Basal Tetrahedron 1/2 Li_2SO_4 — NaCl — $RbNO_3$ - TlBr in the 7-Component Reciprocal System Li, Na, Rb, Tl || Br, Cl, NO_3, SO_4

S/020/60/130/05/020/061
B011/B005

7-component system Li, Na, Rb, Tl || Br, Cl, NO_3, SO_4 may be assigned to the class of reversible-reciprocal systems. There are 2 figures, 1 table, and 5 Soviet references.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy i konstruktorskiy institut khimicheskogo mashinostroyeniya (All-Union Scientific Research and Design Institute of Chemical Machine Construction)

PRESENTED: October 15, 1959, by I. I. Chernyayev, Academician

SUBMITTED: October 12, 1959

Card 4/4

KHOKHLOVA, N.V., mladshiy nauchnyy sotrudnik; DOMBROVSKAYA, N.S., doktor khim.nauk; KUZNETSOV, V.G., doktor khim.nauk; ZHILINA, Ye.M., inzh.

Chemical investigation of the σ-phase isolated from 1Kh18N9T steel. Trudy NIIKHIMMASH no.34:104-111 '60. (MIRA 14:1)
(Steel--Analysis) (Steel--Metallography)

18.8310

24573

S/137/61/000/005/026/060
A006/A106

AUTHORS: Dombrovskaya, N.S., Alekseyeva, Ye.A.

TITLE: Developing methods of chemico-thermal treatment of metal surfaces to raise their wear resistance

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 5, 1961, 37, abstract 5D331 (V sb. "Povyshenive iznosostovkosti i sroka sluzhby mashin. T. 2". Kivev, AN USSR, 1960, 172 - 177)

TEXT: This is a review of studies carried out for the purpose of raising the wear resistance of steel. They deal mainly with the investigations performed by NIIKhIMMASh on sulfurizing and chlorination of steel. It is pointed out that after chlorination the antiscoring properties of the steel are sharply raised. There are 15 references.

A. B.

[Abstracter's note: Complete translation]

Card 1/1

25071
S/080/60/033/010/025/029
D216/D306

18.8300

AUTHORS: Bruyle, Ye.S., and Dombrovskaya, N.S.

TITLE: A study of the solubility rates of titanium alloys in sulphuric and hydrochloric acid solutions of different concentrations

PERIODICAL: Zhurnal prikladnoy khimii, v. 33, no. 10, 1960, 2360 - 2362

X

TEXT: Titanium has been used as an alloying and deoxidizing element in steel. Recently the wider use both of the pure metal and of alloys has taken place in the construction of chemical plants, in defence, the aircraft industry, etc. The most active solvent of titanium and its alloys is hydrofluoric acid and its mixtures with sulphuric and nitric acids since the protective surface oxide film is soluble in HF. Titanium and its alloys dissolve in H_2SO_4 and HCl solutions on heating. In the case of HCl corrosion studies were made to 20 %; it was found that the corrosion rate increases with

Card 1/3

A study of the solubility ...

the acid concentration. To determine the solubility effects of HCl and H_2SO_4 of different concentrations on Ti and its alloys and also to find the best solvent an alloy of titanium containing 5.7 % of Al was prepared and used for this work. 1 g. of this alloy was placed in a 200 ml. beaker and treated with 100 mls. of acid solutions (5, 10, 15, 20, 25, 30 ... % by wt.). The volume of the solution was kept constant by addition of water. To determine the time effect (30, 60, 90 ... min.) the leaching was interrupted, undissolved shavings were filtered off through a sintered glass crucible, washed with water, dried and weighed. The solubility data is given in tabulated form. The data show that the solubility rate of the Ti-Al alloy in a H_2SO_4 solution of concentration of 5, 10, 15, 20, 25, 30, 35, 40, 45 and 50 % by wt. increases up to 40 % by wt. concentration and the rate is maximum at 120 minutes. With a further increase in concentration the solubility rate decreases and is equal to 150 minutes at a H_2SO_4 concentration of 45.0 % by wt. and to 240 minutes at 50.0 % by wt. In the case of HCl the maximum ra-

Card 2/3

te is at 30.0 % by wt. concentration and is equal to 90 minutes, while an increase in concentration decreases the solubility rate to 120 minutes. From this data the conclusion is that the maximum solubilities of the alloy are obtained with 30.0 % by wt. of HCl and 40.0 % by wt. of H_2SO_4. There are 2 figures, 2 tables and 4 references: 1 Soviet-bloc and 3 non-Soviet-bloc. The references to the English-language publications read as follows: M. Codell, G. Norwitz, I. Mikula, Analyt. Chem., 9, 1379, 1955; G. Norwitz, M. Codell, Metallurgia, 57, 347, 261-270, 1958; L.B. Golden, I.R. Lane, W.L. Achermen, Ind. Eng. Ch., 44, 1952

ASSOCIATION: Vsesoyvznyy nauchno-issledovatel'skiy i konstruktorskiy institut khimicheskogo mashinostroyeniya (All-Union Scientific Research and Constructional Institute of Chemical Engineering)

SUBMITTED: April 8, 1960

Card 3/3

DOMBROVSKAYA, N.S.; ALEKSEYEVA, Ye.A.

Methods of cleaving phase diagrams of multicomponent, reciprocal anhydrous salt systems for prisms of the 2nd kind, 3/3. Zhur. neorg. khim. 6 no.3:702-711 Mr '61. (MIRA 14:3)
(Phase rule and equilibrium)
(Systems(Chemistry))

POSYPAYKO, V.I.; DOMBROVSKAYA, N.S.

Singular star of a quinary reciprocal system consisting of nine salts--lithium, sodium and thallium chlorides, bromides, and sulfates. Zhur. neorg. khim. 6 no.3:712-719 Mr '61. (MIRA 14:3)

(Systems(Chemistry))

KHAKHLOVA, N.V.; DOMBROVSKAYA, N.S.

Exchange reactions in the quinary reciprocal system Li, Na, Rb Cl, NO_3, SO_4. Zhur.neorg.khim. 6 no.4:957-965 Ap '61. (MIRA 14:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy i konstruktorskiy institut khimicheskogo mashinostroyeniya.
(Systems (Chemistry))

POSYPAYKO, V.I.; KHAKHLOVA, N.V.; ALEKSEYEVA, Ye.A.; DOMBROVSKAYA, N.S.

Singular decomposition of the polytope of the quintary reciprocal system consisting of nine salts: Na, Rb, Ti || Cl, Br, NO_3. (MIRA 14:11)
Zhur.neorg.khim. 6 no.6:1401-1407 Je '61.
(Salts) (Systems (Chemistry))

POSYPAYKO, V.I.; DOMBROVSKAYA, N.S.

Exchange reactions in the quintary reciprocal system consisting of nine salts of lithium, sodium, and thallium chlorides, bormides, and sulfates. Zhur.neorg.khim. 6 no.6:1408-1417 Je '61. (MIRA 14:11)

(Systems (Chemistry)) (Salts)

ALEKSEYEVA, Ye.A.; DOMBROVSKAYA, N.S.

Dividing the composition diagram of the septenary reciprocal system consisting of 20 salts A, B, C, D || X, Y, Z, T of the 16 C type. Zhur.neorg.khim. 6 no.9:2158-2162 S '61. (MIRA 14:9)
(Salts) (Systems (Chemistry))

OPARINA, A.F.; DOMBROVSKAYA, N.S.

Ternary reciprocal system consisting of bromides and nitrates of lithium and sodium. Zhur.neorg.khim. 6 no.10:2364-2370 O '61. (MIRA 14:9)

(Systems (Chemistry))

27915
S/080/61/034/010/015/016
D228/D301

18.1285

AUTHORS: Zhilina, Ye. M. and Dombrovskaya, N. S.

TITLE: Electrolytic separation and chemical analysis of β -titanium from the alloy VTZ-1

PERIODICAL: Zhurnal prikladnoy khimii, v. 34, no. 10, 1961, 2345-2347

TEXT: The authors isolated one phase--β -titanium, a high temperature modification with a space-centered cubic lattice--of the alloy VTZ-1 and determined its chemical composition. VTZ-1 is a titanium alloy composed of the solid solutions of α - (a low temperature form with a hexagonal lattice) and β -titanium; it contains 8.36% of Al, Cr, Mo, Si, Fe and C. The electrolytic method of phase separation was used since the alloy is completely dissolved by dilute acids. The initial procedure consisted of two stages: electrolysis of alloy samples inserted in glass cylinders, wrapped in tracing paper and placed in a solution of dil. HCl and methyl alcohol for 60 min. at a current density of 0.07 A/cm^2 with a cathode of two platinum discs, with subsequent roentgenometric and electronographic

Card 1/2

Electrolytic separation...

analysis of the electrolytic residues after their filtration, washing and drying. According to the results, the residue is a pure phase of β-titanium stabilized by Cr and Mo. On analyzing both the residue and electrolyte by colorimetric techniques, the authors ascertained the composition of the β-titanium phase, i.e. 13% Cr, 7.0% Mo and 67% Ti. Thus, the residue is enriched by Cr and Mo in comparison with the alloy itself; Al, however, only occurs in the electrolyte along with part of the Mo and Cr. On the basis of previous work by I. Khansen (Ref. 4: Struktura dvoynkh splavov (Structure of Binary Alloys), Moscow, 1941), it is suggested that Cr is present in α-titanium together with all the Al, that some of the β-titanium was dissolved, and that the solubility of Mo is lower than is the case in the binary alloy Ti - Mo. There are 1 figure, 2 tables and 5 Soviet-bloc references.

SUBMITTED: July 25, 1960

Card 2/2

DOMBROVSKAYA, N.S.; KHAKHLOVA, N.V.; ALEKSEYEVA, Ye.A.

Intersection between a stable and a nonequilibrium tetrahedron in the septenary reciprocal system Li, Na, Rb, Tl Br, Cl, NO_3, SO_4. Dokl. AN SSSR 137 no.6:1361-1363 Ap '61. (MIRA 14:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy i konstruktorskiy institut khimicheskogo mashinostroyeniya. Predstavleno akademikom I.V. Tananayevym.

(Systems (Chemistry))

FOSYPAYKO, V.I.; DOMBROV . . N.S.

Exchange reactions and cleavage of the phase diagram of a quinary reciprocal system made up of nine salts: lithium, sodium and thallium chlorides, bromides, and sulfates. Dokl.AN SSSR 138 no.1:127-129 My-Je '61. (MIRA 14:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskogo mashinostroyeniya. Predstavleno akademikom I.V.Tananayevym.
(Systems (Chemistry))

S/078/62/007/002/007/019
B119/B110

AUTHORS: Khakhlova, N. V., Dombrovskaya, N. S.

TITLE: The quaternary reciprocal system Na, K, Ba||Cl, SO_4

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 2, 1962, 364 - 376

TEXT: The study of the quaternary reciprocal system is of practical importance for selecting high-temperature salt baths and baths for the temperature range from 500 to 700°C. To determine the crystallization volumes in the Na, K, Ba||Cl, SO_4 system as well as the quadruple points the lower base of the prism Na, K, Ba||SO_4, the stable triangle Na_2Cl_2 - K_2Cl_2 - $BaSO_4$ (already studied in a previous paper of the authors (Ref. 12: Zh. neorgan. khimii, 5, 920 (1960))) the non-equilibrated triangle Na_2SO_4 - K_2SO_4 - $BaCl_2$, and the section (70.0% Na_2SO_4 + 30.0% K_2SO_4) - (70.0% Na_2Cl_2 + 30.0% K_2Cl_2) - $BaSO_4$ - $BaCl_2$ were studied experimentally. The thermograms of a series of mixtures were recorded with Kurnakov pyrometers to ascertain the melting temperature in the quaternary

Card 1/ 2

The quaternary reciprocal system...

eutectic points. Results: As to type, the Na, K; Ba||Cl, SO_4 system lies between the irreversible and the semireversible reciprocal systems. The phase prism of the six salts of the system contains in total nine crystallization volumes, that of $BaSO_4$ being the largest. The system contains three quaternary eutectics which are 1) in the Na_2Cl_2 - $K_2Cl_2 \cdot BaCl_2$ - $BaCl_2$ - $BaSO_4$ tetrahedron (75.9% $BaCl_2$; 9.5% K_2Cl_2; 9.5% Na_2Cl_2; 5.1% $BaSO_4$; melting point 542°C); 2) in the Na_2Cl_2 - K_2Cl_2 - $K_2Cl_2 \cdot BaCl_2$ - $BaSO_4$ tetrahedron (23.5% $BaCl_2$, 23.5% K_2Cl_2, 47.0% Na_2Cl_2, 6.0% $BaSO_4$; melting point 552°C); 3) in the Na_2Cl_2 - K_2Cl_2 - Na_2SO_4 - K_2SO_4 - $BaSO_4$ pyramid (6.2% Na_2Cl_2, 32.8% K_2Cl_2, 56.0% Na_2SO_4, 5.0% $BaSO_4$; melting point 522°C). The last eutectic is suitable for a chloride-sulfate salt bath; the former two for chloride salt baths. The following guiding principles are suggested to determine one component of a multicomponent system that is suitable as salt bath with a certain working temperature interval: 1) determination of the singular point of the system; 2) thermographic

study of a series of mixtures within the cross section; 3) rational subdivision of the phase diagram. M. M. Kristal' (Ref. 1: Sb. n.-i. in-ta khim. mashinostroyeniya (Scientific Research Institute for Chemical Engineering), 27, 120 (1959)); Gemskiy (Ref. 2: Spravochnik, tekhnicheskaya entsiklopediya (Manual technical encyclopedia), 6, 191, 173 (1931)); G. I. Nagornyy, T. D. Zima (Ref. 3: Izv. n-i. fiz.-khim. in-ta pri Irkutskom un-te, 2, 31 (1953)); E. B. Britske, A. F. Kapustinskiy (Ref. 5: Termokhimicheskiye konstanty neorganicheskikh veshchestv, (Thermochemical constants of inorganic substances), M., 1949); G. I. Nagornyy, N. A. Finkel'shteyn (Ref. 7: Izv. n.-i. fiz.-khim. in-ta pri Irkutskom un-te, 4, 94 (1959)); Ye. K. Akopov, A. G. Bergman (Ref. 9: Zh. obshch. khimii, 24, 1524 (1954); Ref. 10: Zh. neorgan. khimii, 4, 1653 (1959)); A. N. Khlapova (Ref. 13: Dokl. AN SSSR, 105, 500 (1955).are mentioned. There are 6 figures, 4 tables, and 13 references: 11 Soviet and 2 non-Soviet. The reference to the English-language publication reads as follows: O. Kubashevsky, W. Evans. Thermochemical Metallurgy, London, 1956.

SUBMITTED: January 23, 1961

Card 3/

POSYPAYKO, V.I.; DOMBROVSKAYA, N.S.

Exchange reactions in the quinary reciprocal system consisting of eight salts with two double compounds. Zhur.neorg.khim. 7 no.3:645-649 Mr '62. (MIRA 15:3)
(Systems (Chemistry))

DOMBROVSKAYA, N.S.; DOMBROVSKAYA, O.S.

Sectioning of the constitution diagram of multicomponent systems according to apex indexes with complex formation between components. Zhur.neorg.khim. 7 no.3:650-652 Mr '62. (MIRA 15:3)
(Systems (Chemistry)) (Complex compounds)

ALEKSEYEVA, Ye.A.; DOMBROVSKAYA, N.S.

Interaction of salts in the five-component reciprocal system Li, Rb, Tl||Br, NO_3,SO_4. Zhur.neorg.khim. 7 no.7:1659-1665 Jl '62. (MIRA 16:3)

(Systems (Chemistry)) (Salts)

DOMBROVSKAYA, N.S.; POSYPAYKO, V.I.

Determination of a relative stability of salts in multicomponent reciprocal systems. Zhur.neorg.khim. 7 no.10:2434-2437 O '62. (MIRA 15:10)

(Systems (Chemistry)) (Salts)

DOMBROVSKAYA, N.S.; ALEKSEYEVA, Ye.A.

Singular star of the senary reciprocal system consisting of 12 salts: Li, Rb, Tl || Br, Cl, NO_3, SO_4. Zhur. neorg. khim. 7 no.8:2002-2012 Ag '62. (MIRA 16:6)

(Systems(Chemistry))
(Fused salts)

DOMBROVSKAYA, N.S.; ALEKSEYEVA, Ye.A.

Completeness of interaction and thermochemical relations in the quinary reciprocal system Li, Rb, Tl || Br, NO_3, SO_4. Zhur.neorg.khim. 7 no.12:2801-2805 D '62. (MIRA 16:2)
(Systems (Chemistry)) (Thermochemistry)

POSYPAYKO, V.I.; DOMBROVSKAYA, N.S.

Breaking up of the constitution diagram and the exchange reaction of a quinary reciprocal system consisting of nine salts: chlorides, bromides, and nitrates of sodium, rubidium, and thallium. Zhur. fiz.khim. 36 no.10:2275-2277 O '62. (MIRA 17:4)

1. Vsesoyuznyy zaochnyy politekhnicheskiy institut.

DOMEROVSKAYA, N.S.

Determination of the steps of stable diagonals in a reciprocal septenary system of the 16 C type. Dokl. AN SSSR 147 no.3:615-617 N '62. (MIRA 15:12)

1. Predstavleno akademikom I.V. Tananayevym.
(Systems (Chemistry))

POSYPAYKO, V.I.; DOMBROVSKAYA, N.S.

Exchange reactions in the quinary reciprocal system consisting of nine salts: chlorides, bromides, and nitrates of sodium, rubidium, and thallium. Zhur.neorg.khim. 8 no.2:407-412 F '63. (MIRA 16:5)
(Systems (Chemistry)) (Salts)

DOMBROVSKAYA, N.S.

Septernary reciprocal system of 15 salts. Zhur.neorg.khim. 8 no.3: 729-733 Mr '63. (MIRA 16:4)
(Systems (Chemistry)) (Salts)

L 13576-63 EWT(q)/EWT(m)/BDS AFFTC/ASD JD/JG

ACCESSION NR: AP3000190 S/0080/63/036/004/0910/0912

AUTHOR: Bruyle, Ye. S.; Dombrovskaya, N. S. 58

TITLE: Investigation of the effect of a medium on the quantity of niobium, tantalum, and titanium in solution in conducting a chemical analysis

SOURCE: Zhurnal prikladnoy khimii, v. 36, no. 4, 1963, 910-912

TOPIC TAGS: acidity effect, precipitation, tartaric acid, sulfuric acid, oxalic acid

ABSTRACT: Dissolving tantalum, niobium, and titanium in hydrofluoric and nitric acids followed by sulfuric acid, presents a problem of hydrolysis of their salts if the acidity of the solution is not correctly regulated. To eliminate these difficulties, it was necessary to establish the correct concentration of sulfuric acid and also to introduce into the solution complexing substances such as tartaric or oxalic acids. Orig. art. has: 1 table and 1 graph.

ASSOCIATION: Vsesoyuzny"y Nauchno-Issledovatel'skiy i Konstruktorskiy Institut Khimicheskogo Mashinostroyeniya (NIIKhIMASh) (All-Union Research and Design Institute for Chemical Machine Building)

Card

BRUYLE, Ye.S.; DOMBROVSKAYA, N.S.

Determination of zinc and aluminum in zinc-plating electrolyte by complexometric titration. Zhur. prikl. khim. 36 no.10:2305-2306 O '63. (MIRA 17:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy i konstruktorskiy institut khimicheskogo mashinostroyeniya.

DOMBROVSKAYA, N.S.; ALEKSEYEVA, Ye.A.

New types of the singular stars of senary reciprocal systems.
Zhur. neorg. khim. 9 no.5:1266-1271 My '64.

DOMBROVSKAYA, N.S.; POSYPAYKO, V.I.; ALEKSEYEVA, Ye.A.; KHAKHLOVA, N.V.

Stable elements of hepta-component reciprocal systems. Dokl. AN SSSR 165 no.5:1081-1084 D '65. (MIRA 19:1)

1. Submitted May 13, 1965.

DOMBROVSKAYA, O.I.

Synoptic conditions resulting in strong winds in the Ukraine. (MIRA 13:5)
Trudy Ukr NIGMI no.10:3-14 '59.

1. Kiyevskoye Byuro pogody.
(Ukraine--Winds)

DOMBROVSKAYA, O.I.; VOLEVAKHA, V.A.

Conditions of the formation of cloudiness and precipitation in the Ukraine in the southeastern transport during the cold period of the year. Trudy UkrNIGMI no.43:168-176 '64. (MIRA 18:4)

DOMBROVSKAYA, N.S.; DOMBROVSKAYA, O.S.

Sectioning of the constitution diagram of multicomponent systems according to apex indexes with complex formation between components. Zhur.neorg.khim. 7 no.3:650-652 Mr '62. (MIRA 15:3)
(Systems (Chemistry)) (Complex compounds)

DOMBROVSKAYA, R.I.

Brucellar injuries of the nervous system. Zhur.nevr.i psikh. 54 no.3: 230-232 Mr '54. (MLRA 7:4)

1. Kafedra nervnykh bolezney i neyrokhirurgii Rostovskogo-na-Donu meditsinskogo instituta.
(Nervous system--Diseases) (Brucellosis)

DOMBROVSKAYA, T. N.

USSR/Physics - Electron optical study

FD-1139

Card 1/1 Pub. 129-3/23

Author : Dombrovskaya, T. N.; Dubinina, Ye. M.; and Spivak, G. V.

Title : Electron optical method for studying the local emission of an oxide cathode

Periodical : Vest. Mosk. un., Ser. fizikomat. i yest. nauk, 9, No 7, 25-32, Oct 1954

Abstract : The purpose of the author is to work out a qualitative method for studying the distribution of the local emission from an oxide cathode in an impulse regime on the basis of measurements for the current at various points in the plane of representation (image) of the microscope, namely according to the magnitude of brightness of the screen illumination. He concludes that the method of photometry of cathode image can be used to determine quantitatively this distribution. The curves of photometry show that the actual emission surface of an oxide cathode in an unstationary regime is much less than in a stationary regime, which may be partially explained by the diffusion of barium over the surface of the cathode Seven references (e.g. N. D. Morgulis, 1936-1951; V. I. Milyutin, 1949; A. M. Rozenfel'd, 1951; I. S. Zheludev, 1952; I. A. Deryugin, 1951).

Institution : Chair of Electron Optics

Submitted : February 16, 1954

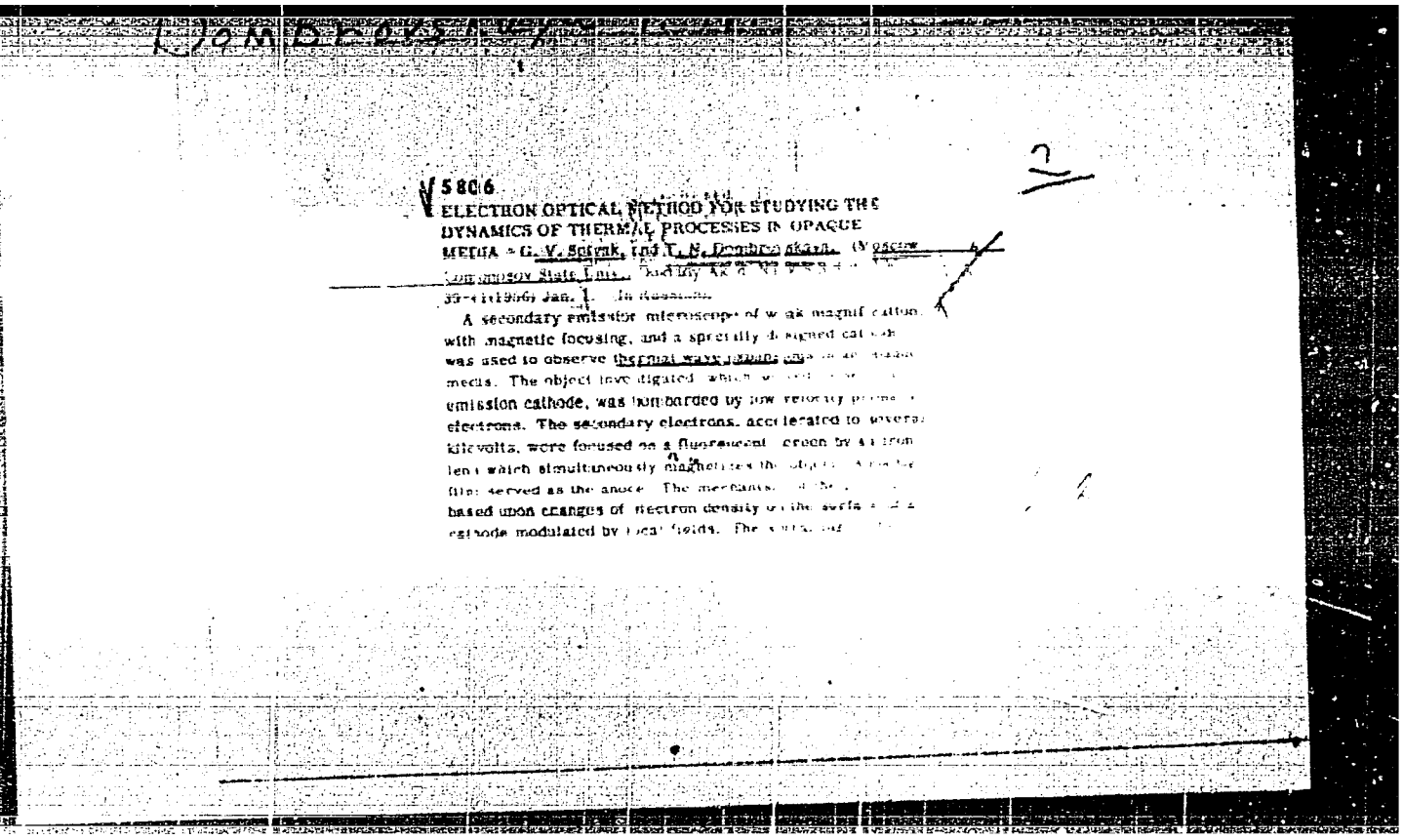
SPIVAK, G.V., KAMAVINA, N.G., SBITNIKOVA, I.S., DOMBROVSKAYA, T.N.

Electron optical method of mapping the domains of ferromagnetic materials. Dokl. AN SSSR 105 no.4:706-708 D '55. (MLRA 9:3)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova. Predstavleno akademikom M.A. Leontovichem.
(Ferromagnetism)

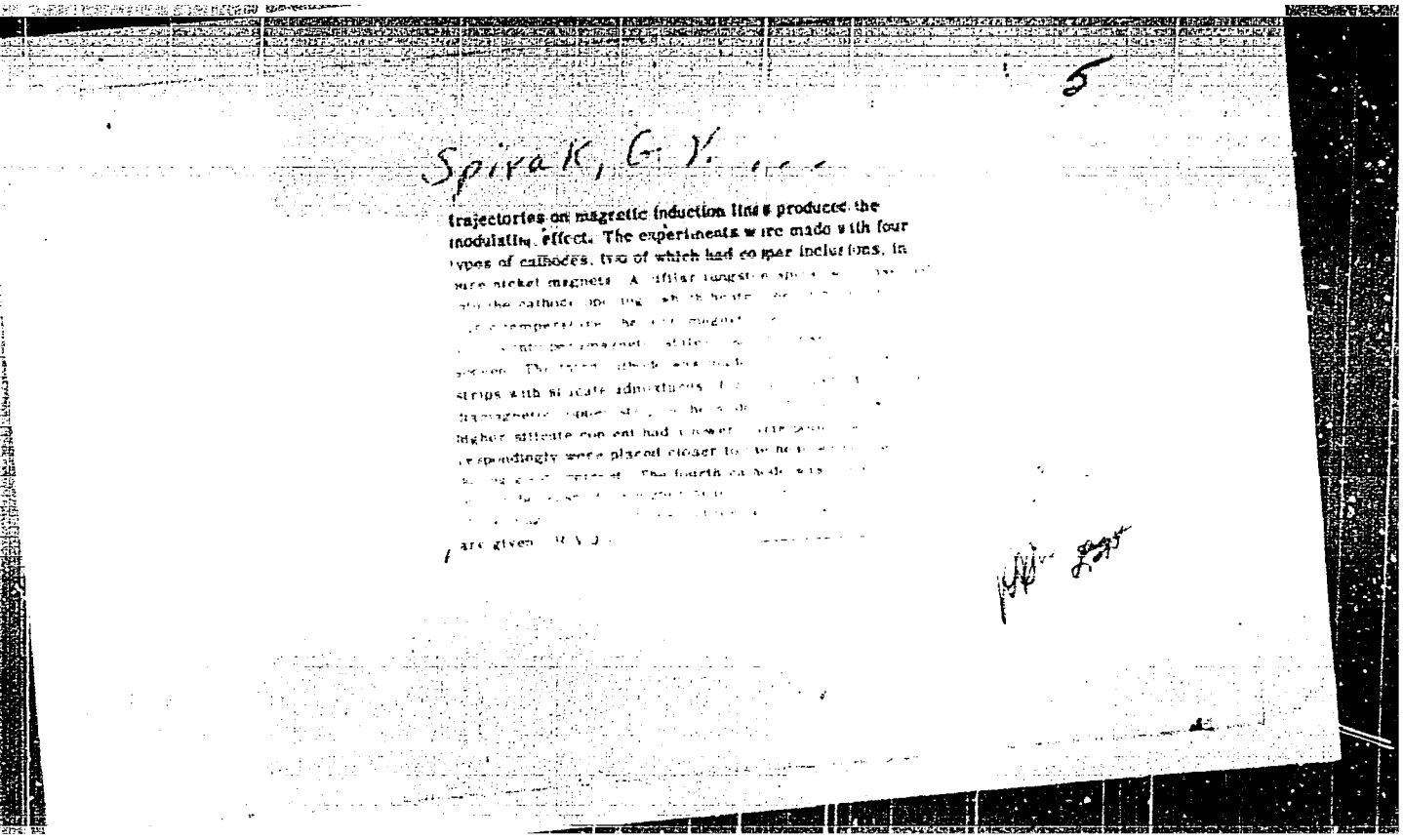
DOMBOVSKAYA, T. N., PRILEYAYEVA, I. N., SHITNIKOVA, I. S., KANAVINA, N. G., SPIVAK, G. V., AZOVTSEV, V. K., (MOscow)

"On the Direct Visualization of the Domains of a Ferromagnetic by Means of and Electron Microscope with Secondary Emisssion and an Electron Mirror," a paper submitted at the International Conference on Physics of Mangetic Phenomena, Sverdlovsk, 23-31 May 56.



5806
ELECTRON OPTICAL METHOD FOR STUDYING THE DYNAMICS OF THERMAL PROCESSES IN OPAQUE MEDIA - G. V. Spivak, and T. N. Dombrovskaya. (Moscow State Univ.) Zhurnal Tekhnicheskoy Fiziki, 35-6:1119-26, June, 1965. In Russian.

A secondary emission microscope of weak magnification with magnetic focusing, and a specially designed cathode was used to observe thermal waves [illegible] media. The object investigated, which served as the emission cathode, was bombarded by low velocity primary electrons. The secondary electrons, accelerated to several kilovolts, were focused on a fluorescent screen by an electron lens which simultaneously magnetized the object. A metal film served as the anode. The mechanism [illegible] based upon changes of electron density on the surface of a cathode modulated by local fields. The [illegible]



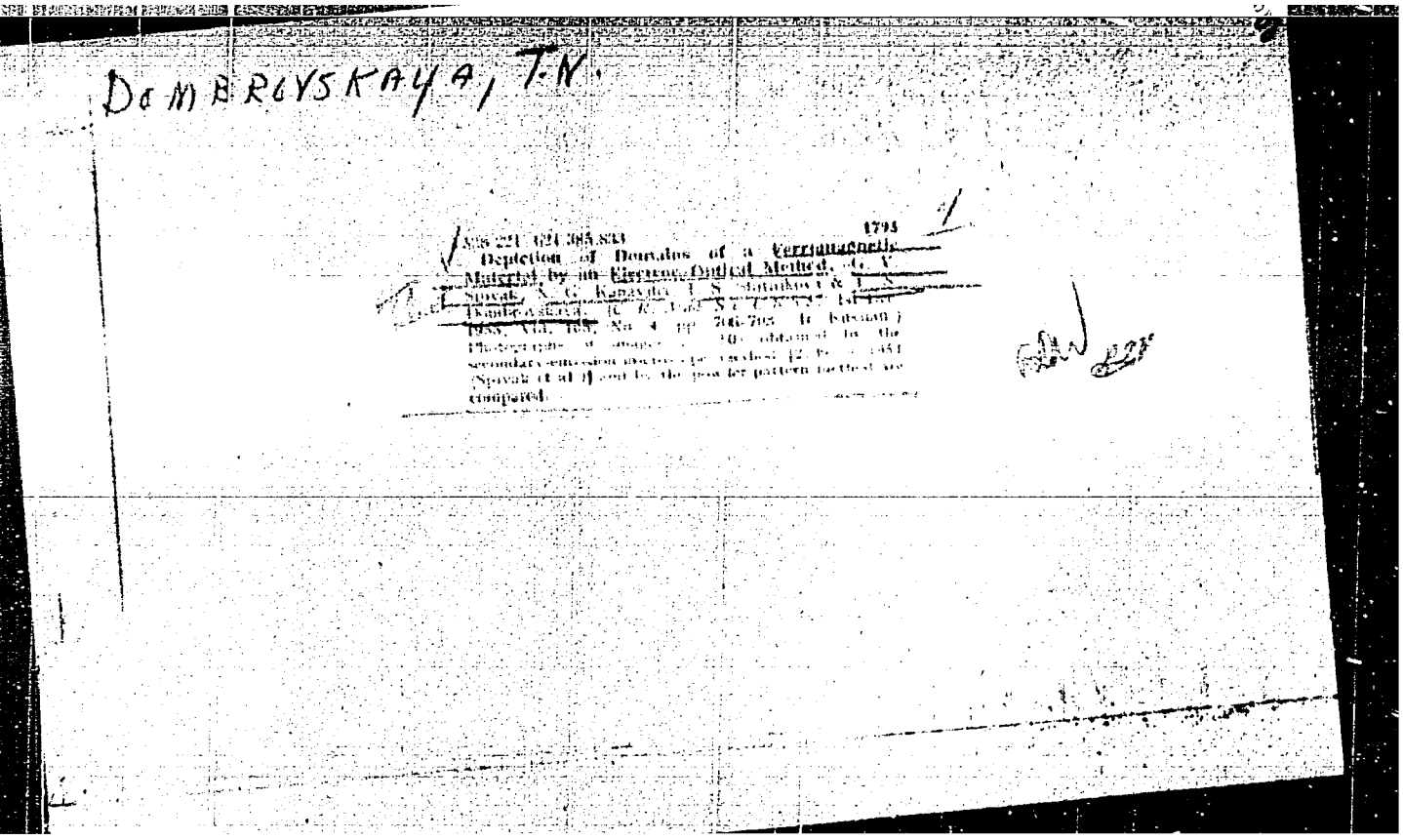
Spivak, G. V.

trajectories on magnetic induction lines produce the modulating effect. The experiments were made with four types of cathodes, two of which had copper inclusions, in pure nickel magnets. A similar [illegible]

[illegible] strips with [illegible]

[illegible] higher silicate content had [illegible]

[illegible] are given [illegible]



DOMBROVSKAYA, T. N. Cand Phys-Math Sci -- (diss) "Development of the electron-optical method of waviness of [illegible] certain applications," Mos, 1957. 9 pp 21 cm. (Mos Order of Lenin and Order of Labor Red Banner State U im M. V. Lomonosow). (KL, 13-57, 97)

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AUTHORS: Spivak, G. V., Kanavina, N. G., Sbitnikova, I. S. 48-8-21/25
Prilezhayeva, I. N., Dombrovskaya, T. N., Azovtsev, V. K.,

TITLE: The Direct Observation of Domas of Ferromagnetica on the Occasion of the Application of the Double-Emission Electron Microscope and the Electron Mirror (O neposredstvennom nablyudenii domenov ferromagnetika pri pomoshchi vtorichno-emissionnogo elektronnogo mikroskopa i elektronnogo zerkala)

PERIODICAL: Izvestiya AN SSSR, Ser.Fiz., 1957, Vol. 21, Nr 8, pp. 1177-1182 (USSR)

ABSTRACT: Already in 1947 L. Germer proved that the electron beam gliding along the cobalt monocrystal enters into cooperation with doma fields, but the was not able to obtain a doma image because the electron beam used by him for this purpose was not suitable.Also the results obtained by the research work carried out by Marston and his collaborators are here described as interesting, but also in this case doma images were not obtained. In contrast to the works mentioned, a method is suggested here, according to which it is possible to obtain doma images of ferromagnetica by the application of the electron beam, and also the process of magnetization can be observed on the surface of the sample. This paper is based upon the idea that it is possible to produce an electron optical contrast, and that, hereby, it is possible to study magn-

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